An Address
ON
PROGNOSIS.

DELIVERED BEFORE THE BOURNEMOUTH MEDICAL SOCIETY,
BY

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THE art of Medicine is a difficult one. The diagnosis of disease, its treatment, its pathology, its etiology, are each and all matters of more or less difficulty. The prognosis of disease is beset with pitfalls; these pitfalls are many and frequent, not merely for the tyro in medicine but even for the most experienced. Prognosis means "knowing before," and though here and there no one better than a medical man can "know before" what is likely to ensue in a given case, how often it happens that the event turns out somewhat differently from what even the most experienced among us has been led to expect.

I have been led to take this subject as the basis for a few remarks owing to the number of cases I have encountered in which patients have told me that many years ago they were told they had some fearsome or fearful disease; that Dr. So-and-so said they had only days or a few weeks or a few months, as the case might be, to live, and that, to their astonishment, not only have they lived but the fearful and fearsome disease from which they were supposed to be suffering and which was to prove so fatal has entirely disappeared, according to later authorities consulted; and here and there it has so happened—and I must confess to a certain feeling of exhilaration whenever this fact is superadded—the condemning medical man has died first. I feel I ought to suppress this exhilaration, but have to confess that in almost every case in which this sad fact has been recorded by the condemned patient, I have so far failed. Not that I have not made mistakes myself—as in the sequel I shall show you—but when I consider the numbers of lives I have met with, broken down nervously, apprehensive neurotics; coddled bronchitics; gluttonous dyspeptics; females with "heart disease" suffering from flatulence; patients with pseudo-angina in Bath chairs; cross-grained and irritable old ladies taking opium pills; and making every one about them miserable by fads and fancies and vapours, then I ask myself who is responsible for so much of this misery and distress, and I too often find it is a member of my own profession, who, in some unguarded moment, started a pebble of innocent prognosis which, rolling on during the years, has become a regular avalanche of chronic invalidism and avoidable self-torture. Beware the unguarded word! Beware the unguarded hesitation! Beware even the unconscious sigh! An eminent consultant once told me that a patient made to him this interesting confession. It was fortunately after many years of successful attendance, when the lung mischief for which he was called in had quite healed, and the patient knew her doctor well enough to talk to him in this wise: "Early in my illness, when you used to auscult my lungs, you had, perhaps, what was only a trick, or habit of listening to my breathing, and then giving a little sigh. Every time you did this I said to myself, 'Another bit of my lung gone.'" I need hardly add, my medical friend was quite unconscious of his sighing propensities.

But this brings me to the point I wish particularly to emphasize—that we medical men hold here an enormous power potent for good or ill to our patients. Our prognosis means so much to our patients. Sometimes it means all. Is it serious? Is it dangerous? Is it malignant? Is it a growth? Is it heart disease? Is it this? Is it that? Let no one of us think it is a matter of indifference how we answer. Of course we must give an honest opinion, but how that honest opinion is given matters a very great deal.

I do not intend to debate the old question as to how far we are to communicate dire and dread facts to our patients; whether in all cases we are to tell the brutal truth brutally or politely. Whether the patient with heart disease is to be shielded from knowing the truth, the whole truth, and nothing but the truth. Whether the inoperable malignant growth is to be unmasked in all its hateful aspect to the trembling patient hanging on our lips for the fateful decision. These questions have been debated before and generally receive the tactful and courteous consideration which I am pleased to think still endures among us, and which I believe distinguishes our profession even above all others, not excepting the clerical.

I want rather to emphasize this part of my subject, that in doubtful cases, where we cannot be *quite* sure, where our "knowing before" must, if we are honest to ourselves, be a very uncertain knowledge, let us hesitate before we speak in didactic phrase to either the patient or anxious friends, of how long the sufferer has to live, and how short the time before the "abhorred shears" will snap the life-thread of those dependent upon us for an opinion as to prognosis in an admittedly problematical situation.

We may be *wrong* in our deductions. Let me cull two cases from my own experience to show this. *Twenty-seven years* ago I was asked to see, for an absent colleague, a bad case of haemoptysis, fibroid lungs, extensive excavation, emaciation, fever, and the usual accompaniments of fairly advanced pulmonary disease; frequent and severe attacks of haemorrhage followed. Prognosis—most of you would have failed to guess what has happened. That patient, thanks to indomitable pluck both on his own part and that of a devoted wife, is still the honoured head of one of our principal firms in Bournemouth, going to his office daily, and getting through an amount of work which puts to shame many a younger and a stronger man. How easy to have taken a pessimistic view of such a case twenty-seven years ago, to measure out his days, and to quote a very long figure in sporting odds against the chances of such an one. Had he been told he had no chance of recovery, had he had explained to him the pathology of his case, had he been other than he is in temperament, pluck, and that "quietness and confidence" which go so far to help such a sufferer, think you he would be alive to-day? I trow not. Our deduction from our usual experience of such cases would have buried him years ago.

Yet another case. Four years ago a severe case of rheumatoid arthritis in an old lady of nearly 80 came under my care. The severe pain which she suffered on the slightest movement was excruciating, and this pain persisted in spite of sedatives, spas, and external applications, giving rise to the suspicion that such acute agony could only be due to ulceration inside the hip-joint, to which most of the pain was referred. Heart complications set in three years ago at 80 years of age. The myocardium became very degenerated, anasarca and ascites, and at last a general oedema, reaching even to the face, seemed to usher in the final scene. Prognosis, three years ago—a week or a month would seem to be the proper period to give to such a case. Yet that patient is still living, still dropsical, still with heart attacks of such a nature that she becomes cyanotic for hours, but the pain of the rheumatoid condition has long since departed, and yet blistering her spine has not been the treatment employed.

Such cases, I think, should teach us to be more chary of prophesying when we do not know. Probably every medical man here could give instances from his experience of such cases. The lesson to be learnt is, I think, obvious. Even from the lowest motive—a desire to show our knowledge—it is wise to hesitate before limiting the period of existence possible in even some of the worst cases with which we may be confronted. Nor does the individual who attempts to be in a measure cheerful escape from pitfalls of his own making, as the following instance shows.

An eminent practitioner of this town was attending an old lady, aged 80. To cheer her up, and impart some of that optimistic spirit for which, as well as other virtues, he is rightly famous, he told her he could see no reason why she should not live to be 90. Contrary to his expectations and to those of her friends, a more settled gloom and melancholy possessed the old lady, even after this would-be cheering intelligence. The secret came out later when, asked if she was not glad her doctor said she might live to be 90, she pathetically answered, "No, he limited me"! So here is another possible rock of offence—do not limit your prognosis to a term of years, or some misunderstanding may arise even then.

But there is still another aspect of this subject I would have you notice—the therapeutic effect of a hopeful prognosis. I am now speaking from a personal experience both on my own corpus vile and the results on others. If it is at all possible, be optimistic. You little know the suggestive value of a hopeful prognosis. In the course of a fairly long experience I could quote case after case where a hopeful prognosis has done more than all the drugs, vaccines, serums, inhalations *et hoc genus omne* in curing a patient. Hope, that potent elexir of life, as opposed to hopelessness, that dreary quenching of the spark of life. Never mind the failures, we have all to fail one day. Death, against whom we wage an incessant war, and whom we so often drive away from the field baffled and defeated for a time, has yet this revenge: some day he will return to conquer. Yet, while we honestly can, let us add to our therapeutic armoury the suggestion of hope. If we cannot give hope of cure, let us give hope of relief; if we cannot give relief, let us give hope of partial relief; if we cannot give hope of partial relief, let us have some philosophy to offer to our wounded and sorely stricken patients, that even then we may administer some medicine to the mind.

I am here reminded of a letter written to the BRITISH MEDICAL JOURNAL some years ago reflecting somewhat scathingly on the optimism of a well-known London consultant whose name at that time was in almost everyone's mouth, professional and layman alike. A patient who complained of pain in the chest and had consulted many men but could get no relief at last consulted this famous consultant, and was told nothing could be found, not even with *x* rays. He was sent away with a cheerful prognosis. Soon after *x* rays revealed a mediastinal tumour, from which ultimately the patient died. How wrong, in the opinion of the writer of the letter, was the prognosis of the optimistic consultant. I beg to differ. For the one case that was cheered up wrongfully, I, from my own knowledge, could quote a dozen—and I have no doubt the list could be swollen to a hundred even by those present here (were I to mention names)—which this cheery consultant has blessed by his optimism and put on the road to recovery by a hopeful prognosis; and personally I would rather have the opprobrium of one case where in good faith I had given too hopeful a prognosis than bear the guilty knowledge of having condemned an innocent sufferer to added pains more hard to bear, more difficult to sustain, because mental as well as physical, by a dreary prognosis, proved wrong by the after-history of the case, and given on an assumed knowledge which by the light of experience may be falsified again and again.

May I address myself with all proper humility to the younger members of our society, and beg them to take this matter seriously to heart, for—I say it humbly—I think I have observed they are the principal offenders in this respect? They come fresh from hospital with all the latest learning at their finger-tips; they have seen so much that we poor provincial country "joskins" cannot (as they think) have seen, and are so up to date and familiar with the grave cases and serious puzzles of the London hospitals that there is no wonder they are somewhat biassed in favour of (shall I say?) the greater surgery and the more remote in medical cases. When, then, a child has overeaten at a party and has a flushed face, is slightly delirious, has a high temperature, is constipated, sick, and presents a doubtful *tache cérébrale*, it is not always necessary to get in a couple of nurses, apply Leiter's tubes to the head, make a lumbar puncture, and talk to the anxious parents of tuberculous meningitis and other grave diseases. A dose of calomel has been known to make all the other fuss superfluous. A story told of Sir John Erichsen is much to the point here. A lady had sustained an injury to her elbow and had seen several surgeons of note, who failed to give her relief or even give a satisfactory account of the nature of the injury. She was advised to consult Erichsen (then at the zenith of his fame) for a positive diagnosis. After careful examination he counselled the patient thus: "You say, Madame, that you have come to me for a positive opinion about your elbow, and I frankly admit that I cannot give you that opinion; but if you must have a positive opinion, there is the address of my young house-surgeon—he is just qualified—he will give you one."

No; we are none of us infallible, not even the youngest of us, and this fact should make us all, young and old alike, pause before we destroy hope, give even a suggestion of hopelessness, or light-heartedly give expression to opinions and prognosis which may quench for ever the light from some of our patients' lives, and then if, after all, we should prove to be wrong, let us know that never—and the more if we are ordinarily skilful and have a reputation for medical or surgical skill—never shall we or our more careful colleagues be able entirely to remove the impression which our suggestion has made. Tell a patient, perhaps, a growth is malignant, or say lightly "it may be cancerous," or say flippantly, "Oh, your heart is bad," or "I think your lung is slightly touched," you may not have meant to imply the serious thing your patient thinks you implied, but no matter what reassurance he or she may receive from better men than you, and even from two, three, or more better men than you, the fear, the haunting suspicion, will for ever be in that patient's mind, "It may be true," and long years after, when you have forgotten all about the patient—his or her ailment, and your opinion so haphazardly given—that baleful prognosis will be a gaunt spectre in that patient's mind, productive still of anxiety, foreboding, and fear, if not worse.

But there is the pitfall of the other kind, and I should not be true to you or myself did I not point it out and illustrate it. Here I metaphorically stand in a white sheet and confess my failure. Some years ago I was attending a very stout lady, who was full of fads and fancies; she habitually overate, would shut herself up in hot, stuffy rooms, would take no exercise, and was for ever complaining of all sorts of symptoms and sensations which in their variety and combinations fitted in with no pathological picture of any ailment I had ever seen, read, or heard of. She at last complained that she was so ill and felt so ill that I asked my dear old friend, Dr. Douglas, to see her in consultation. He examined her very carefully and could find nothing to account for her symptoms, and was inclined, as I was, to put down her troubles to neurotic and functional causes. We had our consultation at 3.30 p.m. and departed with cheerful prognosis to patient and friends. At 5 p.m., one hour and a half after our consultation, the patient had an attack of cerebral haemorrhage, and died before I could reach her house. I have never again been asked to attend that family, and I have often wondered whether the cerebral haemorrhage was not caused by the intense chagrin which the patient evinced by Douglas's corroboration of my unvaried cheerful prognosis. Such untoward happenings may occur to every one of us. I do not think any of the physical signs pointed to a greater likelihood of cerebral haemorrhage in this stout old lady; she had no overt signs of arterial degeneration, or Douglas or I would have noticed them.

This case has had a wholesome disciplinary effect in qualifying my exuberant optimism, but in spite of it I feel sure that, when honestly possible, optimism in prognosis is not only our pleasant privilege, but our bounden duty. Often it will turn the scale of the flagging forces and dispel the despairing mists, which those of us who have been ill ourselves know only too well creep miasma-like around our sick beds. Such depressions are, like the earth-born fog they so much resemble, dissipated by the sunny brightness of a hope, which deferred, makes the heart sick, but, when given with authority by a skilful optimist, cheers the heart like a medicine, and is a therapeutic agent of such value that I commend it to all of you as a never-failing charm, and one that will not only give you enhanced reputation in your calling, but will infallibly give back to you many a patient you otherwise might have lost, and prove a veritable godsend to many a weary, tired sufferer, whose blessing on your cheery hopefulness will not be your least future reward.

MR. ALFRED ADDERLEY, J.P., a life governor of the Leicester Infirmary, has left to that institution the residue of his estate subject to certain life interests. It is estimated that the infirmary will eventually receive the sum of about £80,000. The infirmary has also recently received under the will of Mrs. Ellen Dyke Frost two legacies of £1,000—one for the general fund, and one for the Children's Hospital. The estate of Mr. Charles Turner, who died four or five years ago, has been wound up, and, in addition to the sum of £1,400 already received, the infirmary has received from the executors the further sum of £933.

A Lecture

ON THE

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

GIVEN AT THE LONDON MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.

BY

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THE early diagnosis of pulmonary tuberculosis is one of the most important subjects in the whole realm of the practice of medicine. As illustrating this I may mention three facts. First, the great prevalence of the disease in this country. Secondly, whatever form of treatment is to be adopted, it is almost universally admitted that to obtain any substantial good, treatment must be begun in the early stages of the disease. And, lastly, the early diagnosis of this disease is very frequently attended with extreme difficulty. Broadly speaking, there are three classes of patients who present themselves for examination at a chest hospital: (1) Those in whom a diagnosis of pulmonary tuberculosis can be made with certainty; (2) those in regard to whom it can fairly readily be said that they are free from the disease, and (3) a considerable proportion in whom a diagnosis is extremely difficult, where the most thorough inquiry into the symptomatology, the most careful examination for physical signs, and sound judgement are required before we can with certainty place them into either of the two classes already named. It is with this third class that I propose mainly to deal, for it is among these questionable cases that the earliest stages of the disease are found, and we will further limit our consideration to the common variety of the disease—that is, the fibro-caseous. I shall not deal with the acute (whether miliary, bronchopneumonic or pneumonic) or fibroid varieties.

It may be said that the examination of the sputum should settle the question. That is not so; because either there may be no sputum to examine, or, if there is, there may be an absence of tubercle bacilli on repeated examination when undoubtedly the patient is suffering from tuberculosis. There is a tendency on the part of many practitioners to place too great reliance upon the result of the examination of the sputum, and correspondingly to neglect a close inquiry into the symptomatology, and, what is of far greater importance, a thorough examination for early physical signs of the disease. During a period of three and a half years it was my lot to examine the sputa of some thousands of patients treated at the Brompton and Victoria Park Chest Hospitals. During this time it was proved beyond all shadow of doubt that a due consideration of the symptoms and a very careful examination for physical signs were sufficient to establish a positive diagnosis in by no means a small proportion of cases several weeks, and occasionally even months, before tubercle bacilli were found in the sputum. This is really not surprising, because it is necessary to have some breaking down of a tuberculous focus and a communication between such a focus and a bronchus in order to give rise to bacillary sputum, and this may occur in only a comparatively late stage of the disease. The examination of the sputum is of very great service in those patients who suffer from bronchitis and emphysema. Indeed, as a means of diagnosis of early pulmonary tuberculosis it is of far greater value in this class of patients than in younger people, for the physical signs of the primary disease frequently mask the presence of a tuberculous lesion, except in its later stages. Consequently the sputum should be examined periodically and as a matter of routine in all cases of emphysema and associated bronchial catarrh. It should be remembered that pulmonary tuberculosis in elderly people is fairly common. When tubercle bacilli are found in the expectoration, and we are able with certainty to exclude tuberculosis of the mouth, pharynx, and larynx, a diagnosis of pulmonary tuberculosis should be made, even in the absence of symptoms and of physical signs. It is worth while making inquiries in regard to the family and past history of the patient, and whether the patient's general health has been lowered by such causes as overwork, mental worry, excess in alcohol, or overlactation, and whether at the time there is any one suffering from pulmonary tuberculosis in the house or at the place of work.

Onset and Symptomatology.

The clinical picture is very varied, and the symptoms often suggest some other system than the respiratory, and for these reasons mistakes are made, the symptoms being attributed to some trivial and temporary cause instead of pulmonary tuberculosis.

The commonest modes of onset are: (1) An attack of common bronchial catarrh in which the cough continues; (2) repeated attacks of bronchial catarrh and the supervention of chronic bronchitis and emphysema (as already stated, it is here that the examination of the sputum for tubercle bacilli is of such value); (3) influenza; (4) haemoptysis; (5) the insidious form (such as loss of strength and anaemia); (6) pleurisy.

The influenzal mode of onset is now well recognized. Buchanan has recorded 12 cases. But a word of warning is necessary; when a patient says he has had "influenza," it is always well to inquire whether any of the characteristic symptoms of that malady have been present, because the general public often apply this term to any attack of fever, whatever its cause may be, and in this way the initial symptoms of pulmonary tuberculosis have frequently been diagnosed as influenza. But the attack may be one of true influenza, which has so lowered the patient's vitality that he has become infected with tuberculosis. On the other hand, influenza may occur during the insidious course of pulmonary tuberculosis, and cause the latter to take on a much more acute phase; or it may light up a quiescent lesion. Another warning is necessary. It must not be forgotten that haemoptysis is by no means rare in the pneumonia of influenza, and furthermore a subacute relapsing bronchopneumonia, with loss of flesh and even slight blood-spitting, may occur.

In the insidious mode of onset, the symptoms may be general ill-health, languor, debility, loss of strength, an irritable or depressed disposition, breathlessness, palpitation, night sweats, functional derangement of the digestive system, anaemia, or tachycardia—either persistent or on slight excitement. In all cases in which a patient complains of these symptoms there are two points which should invariably be inquired into—namely: (1) Is there a steady loss of weight? and (2) Is there any pyrexia? Either of these, in the absence of other discoverable causes, such as tuberculosis of the lymphatic glands or some joint disease, should arouse suspicion. Of course, loss of weight, as well as night sweats, may occur in general debility having such a cause as overwork or oversuckling. On the other hand, loss of weight is not a necessary accompaniment of early pulmonary tuberculosis, especially in anaemic girls. The temperature should be taken four times a day. This presents the possibility of an inverse type, which exceptionally occurs, being overlooked. As a rule, the maximum temperature is found from 4 to 8 p.m., and the minimum from 2 to 8 a.m. One of the characteristics of the fever in pulmonary tuberculosis is its fluctuating and irregular course. The temperature should also be taken after exercise, not because a mere elevation is necessarily indicative of tuberculosis, since this may occur in healthy people after exercise, but because it is characteristic of tuberculosis that the temperature sometimes does not return to the normal within an hour, which it invariably does in a healthy person.

Haemoptysis.

Of all the symptoms of pulmonary tuberculosis spitting of blood is the most important from the point of view of diagnosis. Haemoptysis is a common mode of onset, but, as far as my observations go, it is not such a common mode as is frequently supposed. It is quite true that a large percentage of patients complain of blood-spitting as a first symptom, but on careful inquiry it will be found that a considerable proportion of them have suffered from a cough or other symptoms for some time previously. The value of blood-spitting in diagnosis rests upon the thoroughness

and success of an inquiry in regard to two points, namely: (1) Does the blood come from the respiratory organs—in other words, is it a case of true haemoptysis? and (2) if it is a case of genuine haemoptysis, is there any cause other than pulmonary tuberculosis to account for it? The rules I follow are these: If it is a case of genuine haemoptysis, and if all other causes than pulmonary tuberculosis can be excluded, and there are suspicious symptoms or physical signs or both, a positive diagnosis of early pulmonary tuberculosis should certainly be given; and even in the absence of suspicious symptoms and signs, since in a very large majority of cases there is a small or deep-seated tuberculous lesion in the lung, though the lesion may heal completely without treatment, there are grave risks, and the only safe course is to promptly put the patient under proper treatment. It should be remembered that there is no such thing as idiopathic haemoptysis, and "phthisis ab haemoptoë" does not exist.

It is not always easy to exclude haematemesis. In haemoptysis the blood is usually coughed up, bright red in colour, frothy, mixed with sputum, alkaline, and as a rule does not clot; there is frequently a history of pulmonary symptoms, and there may be physical signs in the lungs. On the other hand, a possible pulmonary origin is not put out of court by the mere facts that the blood is vomited, is mixed with food, and is acid, for sometimes the blood is first swallowed and then vomited. In haematemesis the blood is usually dark red, non-frothy, and generally clotted; there is often a history of gastric symptoms and abdominal physical signs may be present. If the blood is brought up without the act of coughing or vomiting, it is probably not a case of haematemesis. In true haemoptysis, if the cough persists, the sputum is frequently stained with altered blood, or contains small clots for some days afterwards; this is the most reliable sign of pulmonary haemorrhage. When a large quantity of blood is brought up the differential characteristics already named are of no value, since the blood, whatever its source, is usually bright red in colour, alkaline, non-frothy, and not mixed with food or sputum. But a lesion of the lung sufficient to give rise to haemorrhage of this magnitude is revealed by well marked physical signs, so that for purposes of diagnosis of pulmonary tuberculosis it is not necessary to determine the source of the bleeding.

Next the nose, mouth, pharynx, trachea, and larger bronchial tubes must be excluded as the source of bleeding. A uniformly bright red watery fluid often means that the point of origin is in the mouth. Mere streaks of blood may be present in the expectoration from many causes, and therefore cannot be relied upon as necessarily indicative of pulmonary tuberculosis. In bronchitis and emphysema there may be a rupture of capillaries during a paroxysm of severe coughing. A few cases have been recorded in which malignant disease of the thyroid, pressing on the trachea, has given rise to local congestion and catarrh, with accompanying cough, and the expectoration of scanty mucus tinged with blood; if the enlargement has lasted for some time, emphysema of the lungs may be set up. Aneurysm of the thoracic aorta, pressing on or perforating the trachea, bronchus, or lung, may cause haemoptysis.

One of the most important conditions to exclude is mitral disease, whether secondary to aortic, or primary, and especially mitral stenosis. Mitral stenosis is probably the next most frequent cause of haemoptysis to pulmonary tuberculosis, and a common cause of mistake. Perhaps the heart is not examined at all, or if it be examined it is by no means rare for the characteristic murmur to be absent. Furthermore, because of the inhalation of blood there may be evidences of patches of consolidation, with alteration of the breath sounds and some accompaniments. The heart should be examined on several occasions for the characteristic murmur, the character of the pulse should also be noted, and whether there is a short sharp first sound or not.

Rarer causes are diseases of the blood, haemophilia, some acute specific fevers, suppurative processes in the mediastinum, foreign bodies in the air tubes, bronchiectasis, paroxysms of whooping-cough, injury, pulmonary syphilis, aspergillosis, actinomycosis, hydatid, new growth, and pneumonokoniosis. Lastly, Osler believes haemoptysis may occur in vascular degeneration.

Pleurisy.

The first symptoms and physical signs of tuberculosis may be those of pleurisy, either the dry or the serous form. These may persist until the symptoms and physical signs of pulmonary tuberculosis declare themselves, or the latter may only appear later. Tuberculous pleurisy most commonly occurs at the apex of the lung. Dry pleurisy limited to the axillary region or to the base of one lung is undoubtedly often non-tuberculous. Dry pleurisy limited to one apex is, in the absence of croupous pneumonia, almost certainly tuberculous. Bilateral dry pleurisy, or one that is widespread over the lung, is, in the absence of new growth, probably tuberculous; and quite two-thirds of the cases of pleurisy with effusion have the same cause, especially when, on microscopical examination of the fluid, the cells are found to be lymphocytes, in contrast to polynuclear leucocytes.

Physical Signs.

Although the symptoms are important, it is on the early detection of physical signs that the early diagnosis of pulmonary tuberculosis mainly rests. I would lay down two broad principles of vital importance:

First, the locality of the physical signs. In the great majority of cases the primary seat is from 1 in. to 1½ in. below the summit of the lung (rather nearer the posterior and external borders). A less common primary seat is the second and third interspaces below the outer third of the clavicle. The lower lobe of the same lung is usually affected early. It is best examined by getting the patient to place the hand on the opposite shoulder and examining the back internal to the vertebral border of the scapula. The common primary seat of the lower lobe is from 1 in. to 1½ in. below its summit, that is, opposite the fifth dorsal spine, midway between the spinous process and the vertebral border. The lesion then spreads along the line of the vertebral border of the scapula. This early affection of the apex of the lower lobe is of immense value in differential diagnosis. Occasionally a "crossed lesion" is found, that is, the lower lobe of the opposite lung is involved before that of the side primarily affected. The supraclavicular and infraclavicular regions, the supraspinous fossae, and the interscapular regions opposite the fifth dorsal spine should always be very carefully examined.

Primary basal tuberculosis, apart from the pneumonic type, is very rare, and when it does exist there has usually been some antecedent damage sustained, as, for example, by pleurisy. What is called primary basal tuberculosis is often secondary to an apical lesion, which, because it has healed, or for other reasons, has been overlooked.

Secondly, a diagnosis of pulmonary tuberculosis from one single physical sign should never be made. Considerable variations from the normal are often met with in perfectly sound chests. As an example of this fundamental and all-important rule may be cited the fact that if distinct impairment of the percussion note is discovered at one apex, it should, if pathological, be accompanied by other physical signs, such as diminution of expansion, or alteration in the vocal fremitus or breath sounds; otherwise it may be merely indicative of curvature of the spine. Similarly, the mere presence of bronchial breathing may be due to an abnormal position or course of a bronchus; but when such breathing is pathological, the lesion which gives rise to it is always sufficient in degree to cause some other physical sign or signs. On the other hand, several slight abnormal signs, which when taken separately are of no pathological significance, if they all point in the same direction afford just grounds in making a positive diagnosis.

Another point of importance is to compare exactly corresponding points on either side. It is best to have the patient stripped to the waist, seated or standing, in a good light, and to adopt the usual plan of inspection, palpation, percussion, and auscultation.

One clavicle may be seen to stand out more prominently than the other, and there may be some hollowing of the fossae above and below; but these, and also displacement or uncovering of the heart, are evidences of fibrosis, which is a secondary change, and are not found in the very early stage of the disease. Diminution of expansion at one apex is a very early sign. It may be observed by standing in front of the patient, or sometimes it is better observed by

standing behind and looking down the front of the chest from above. There are various ways of noting it by palpation. The thumbs may be placed on the second ribs below the clavicles, the eyes being fixed on the thumbs when the patient takes a long breath; or the hands may be placed below the clavicles; or, standing behind the patient, the thumbs may be placed in the supraclavicular and the fingers in the infraclavicular regions, or the hands on the shoulders close to the neck, the fingers lying over the clavicles touching the infraclavicular areas and the thumbs lying on the supraspinous fossae.

Diminution of expansion at one apex is of great significance and is a very early sign. It is almost always found before any alteration in the percussion note and frequently as soon as any change in the character of the breath sounds. It may only amount to a slight lagging of movement behind that of the other side. If it merely indicates a localized thickening of the pleura without any lesion of the underlying lung, this apical pleurisy is almost always tuberculous. Normally the vocal fremitus is as a rule greater on the right side than on the left—almost certainly in more than 75 per cent. of cases. If it is found to be equal on both sides and well marked, there is probably some disease in the left upper lobe. If it is more marked, the probability is still greater. If the fremitus is equal on both sides but less apparent than normal, it almost certainly means some diminution at the right apex, and this signifies that at that part there is either a thickened pleura, a pleural effusion, or some localized emphysema. This localized emphysema is most frequently due to a deeper tuberculous lesion. Any changes in the vocal fremitus in the supraspinous fossae have the same significance.

When we come to percussion we have to deal with a difficult matter. There are some general rules which it is of very great importance to observe: First, percussion should be performed from the wrist-joint. When possible the examiner should stand immediately in front of the part percussed, percuss exactly corresponding points, and employ exactly the same percussive force on either side. When percussing in front the patient's head should be exactly in the middle line, and as a rule the best results are obtained by light percussion. When percussing behind, the patient should lean slightly forward and cross the arms, but letting the shoulders drop in order to relax the muscles. It must be remembered that as a normal variation one finds the percussion note below the right clavicle slightly raised in about half the cases of healthy chests. The upper border of the lung should first be ascertained. A lowering on one side is significant; but when it is bilateral its value is little, since the height to which the lungs ascend varies in normal individuals. In early pulmonary tuberculosis there is frequently diminished resonance. The note becomes higher pitched, shorter, sharper, lacks the normal tone, and there is a sense of increased resistance to the finger. This can usually be made out on shallow breathing, but occasionally it is more easily detected after the patient has taken a deep breath, owing to the diminished entry of air into the affected part. When impairment is more marked with light than with deep percussion, there is a strong possibility of the existence of a thickened pleura. The heavier the force required to bring out the lack of resonance, the deeper is the infiltration or consolidation. Sometimes the note on the affected side is not only as resonant as that of the other side, but it may even be hyper-resonant. This is indicative of a one-sided apical emphysema, and such a condition is almost always due to an underlying tuberculous scar. I have several times seen a positive diagnosis of pulmonary tuberculosis given from the mere fact that there was a difference in the notes of the two sides, though there were no other physical signs, and there was no pulmonary lesion. Even a considerable difference in note may be present when the two sides are not perfectly symmetrical. We should most carefully examine for the presence of scoliosis, for this condition influences the position of the ribs and the shape of the chest. It is not enough to inquire about the spinous processes. We should note whether the upper ribs are more curved on the one side and flattened on the other, and look for other signs of scoliosis. Even a very slight deviation of the vertebral column from the normal is sufficient to cause a difference in the heights of the two supraclavicular regions and the two supraspinal regions, one side being more rounded than the other. The percussion on this more convex side is less resonant. The breath sounds may also be diminished in loudness.

In people who are extremely emaciated there may be well-marked impairment at both apices, and yet no pathological change to account for it. This impairment may be accompanied by diminution of the breath sounds. The explanation is difficult; but it may be that, on account of the weakness and rest, the apices are not properly filled with air, and therefore sink lower than normal.

If we follow certain rules, we get incalculable help from auscultation. We should first of all see that the patient breathes properly—that is uniformly, fairly deeply, and, if possible, through the nose. Some patients indulge in spasmodic movements of the chest, with the diaphragm fixed; others open their mouths and breathe noisily. Nervous persons, especially women, when asked to take a long breath sometimes produce a false movement of the chest, but at the same time close the glottis, and, since practically no air enters the lungs, the breath sounds are almost inaudible; or they may narrow the glottis, and, as a consequence, bronchial breathing is heard. These errors are avoided by noting that the abnormality in the breath sounds is bilateral, and by getting the patient to cough. In auscultation, the expiratory part should always be taken as the criterion as to whether breathing is truly bronchial or not. It is of far greater importance than the inspiratory part. In true bronchial breathing the expiration should be blowing, and have a uniform pitch and intensity through the whole act. Auscultation over any part of the lung without asking the patient to cough is of incomplete value, because in a certain proportion of cases accompaniments are only found during or immediately after the act of coughing, and also because the significance of râles largely depends upon whether they persist on repeated coughing and deep breathing. Normal, or vesicular, breathing is described by Fowler as a rustling sound, audible during inspiration, generally followed without any appreciable interval by a sound of lower pitch, shorter duration, and faintly blowing quality heard during expiration, but this may be absent.

In bronchial breathing the inspiration is blowing in character; the pitch is higher than in vesicular; there is a distinct interval between inspiration and expiration; the expiration is still more blowing and has a still higher pitch, and has an equal or longer duration than inspiration. As I have said, in true bronchial breathing the expiration should be blowing, and have a uniform pitch and intensity through the whole act. Bronchial breathing is normally heard over the seventh cervical spine, and this locality should always be taken as the standard. Broncho-vesicular breathing, in which the characters of bronchial are combined with those of vesicular breathing, is heard normally over the manubrium in front and the upper part of interscapular region behind. Now it is of the utmost importance to distinguish between the intensity and quality of the breath sounds. Negligence in this is one of the commonest sources of errors. Regarding the intensity of vesicular breathing, even in normal conditions there is a very great range of variation. In one chest it is very loud, in another it is quite faint. Pulmonary tuberculosis has frequently been diagnosed by mistaking harsh vesicular for bronchial breathing. The error can easily be avoided by comparing one side with the other; it is bilateral. Bronchial breathing should be diagnosed by the *quality* and not by the loudness of the breath sounds. But even here it should be remembered that normally the breath sounds on the right side are of slightly higher pitch, and the expiration is rather prolonged; beneath the right clavicle they may be even bronchial, and this has occasionally led to the diagnosis of consolidation or of a vomica in a healthy person. It is sufficient to note the absence of corroborating physical signs. Cog-wheel breathing, when heard equally over the whole of one lung, is of little significance; when limited to one apex it may be of diagnostic value, but even then it is by no means reliable, as it may be caused by irregular muscular contraction. Harsh breath-sounds, with prolonged expiration, limited to an apex, is generally the earliest auscultatory sign of pulmonary tuberculosis. There may be merely prolongation of expiration. If so, what we infer from it depends entirely on its character.

If it is only faintly blowing and of low pitch it probably indicates emphysema; if it is truly blowing and of high pitch it usually means infiltration.

Weak breathing is, in my experience, usually a later sign than harsh breathing. It is frequently overlooked. A marked diminution of the respiratory sound at one apex, especially the right, if persistent on repeated examination, is, in the absence of a localized condition of emphysema, thickening of the pleura, pleural exudation, or bronchiectasis in which the bronchus is plugged, in my opinion, extremely suspicious. It is of greater value when found at the right apex than the left, because normally the breath sounds are louder at the right than at the left apex. The breath sounds in the second and third spaces are frequently harsh, when those above and below the clavicle are feeble. The breathing over the opposite upper lobe may be harsh, owing to increased functional activity; and this may give rise to an error in diagnosis regarding the site of the lesion, because the feeble breath sounds of the side primarily affected are undetected. As the affected area becomes more densely infiltrated the breath sounds become truly bronchial.

Adventitious Sounds.

Adventitious sounds, when present and correctly understood, are probably of greater help in the early diagnosis of pulmonary tuberculosis than any other physical sign. First of all, get the patient to cough and to breathe deeply, for frequently these acts are accompanied by râles which are inaudible in quiet breathing; and, conversely, the significance of accompaniments often depends upon whether they disappear on deep breathing and on coughing. I have already said that a dry pleurisy limited to one apex is, in the absence of croupous pneumonia, almost certainly tuberculous. Also a bilateral dry pleurisy, or one that is widespread over the lung, is, in the absence of new growth, probably tuberculous. This pleurisy may reveal itself by pleural friction, either of the usual kind or of a crepitant character. As a rule, however, the first accompaniments heard in pulmonary tuberculosis are small crackling râles—that is, sharply-defined, crackling sounds, chiefly heard during inspiration; indeed they may be limited to inspiration. It is sometimes almost impossible to distinguish small crackling râles from crepitant pleural friction. The former are not likely to commence at the very beginning of inspiration on quiet breathing, and are not so frequently heard during expiration as are pleural sounds. If the sounds disappear after coughing, a pleural origin can practically always be excluded, and almost always if the accompaniments only occur after coughing. At a later period of a tuberculous invasion sounds of a clicking character are occasionally heard. Only one or two "clicks" are heard during the act of inspiration, and they are practically pathognomonic of commencing softening in a tuberculous focus. When softening has advanced numerous medium and large sized crackling râles may be audible.

Occasionally on listening over the upper part of the chest, both anteriorly and posteriorly, sounds resembling râles are heard immediately after coughing, which are oesophageal in origin, and due to the patient swallowing. They are recognized by the fact that they are bilateral, and are not heard when the patient is told not to swallow after coughing.

Apart from this possible source of error, and also apart from pleural accompaniments, it may be asked whether crackling sounds heard over one apex or both apices are pathognomonic of a tuberculous lesion. The answer is in the negative. First of all, the râles associated with mitral stenosis have been noted. Secondly, sometimes when a patient, who is accustomed to shallow breathing, takes a long breath, the air vesicles, which in a localized area were hitherto collapsed, become suddenly distended, with the result that crackling sounds may be produced; this is especially apt to occur in emphysematous subjects. Their significance may be ascertained by the fact that they do not persist after continued deep breathing and repeated coughing. But even the presence of persistent and strictly localized crackling sounds in the upper part of the chest is not absolutely pathognomonic of infiltration or consolidation. For I have seen a few cases in whom a diagnosis of pulmonary tuberculosis had been made because of the mere presence of crackling sounds over the upper part of both lungs. There were no other physical signs, but the sounds persisted. The cases were watched, and all the channels of inquiry available for the diagnosis of pulmonary tuberculosis were taken advantage of, with a negative result. Such cases are occasionally met with. For this reason, as well as for others, as I have already stated, a cardinal rule should be that a diagnosis of pulmonary tuberculosis from one single physical sign should never be made. Instead of pleural friction or crackling râles, the first auscultatory sign may be the presence of rhonchi or bubbling râles, which frequently disappear on coughing. When these are strictly limited to one apex, and persist over a considerable length of time, the cause is, in my opinion, practically always tuberculosis, and not a simple catarrh. You will thus see that it is the *locality* of accompaniments, whether pleural, crackling râles, bubbling râles, or rhonchi, which is important. Crackling sounds may be heard along the margin of the cardiac impairment, which, as a rule, are of no significance.

Regarding the vocal resonance, all that it is necessary to say is that any alteration of it has pretty much the same significance as alteration in the vocal fremitus.

Other Chronic Pulmonary Disease.

Having diagnosed the presence of a chronic disease of the lungs, affecting mainly or only the apex of one lung, the problem which remains is to exclude a non-tuberculous lesion, such as actinomycosis, hydatid, new growth, or bronchiectasis. This is practically always easy, and I need not go into the points of differential diagnosis.

Other Methods of Diagnosis.

There are a few remaining avenues of investigation which will be briefly dealt with. First, the Roentgen rays. An examination in early pulmonary tuberculosis may reveal a mottled or stippled shadow or irregular movement of the diaphragm on the affected side. As far as my experience has gone, I have never known of any case in which either of these has been demonstrated before physical signs could be made out on careful examination by a competent examiner. Furthermore, the same kind of a shadow may be obtained in new growth of the lung. And impaired movement of the diaphragm occurs in other affections than pulmonary tuberculosis.

Next, the use of Koch's Old Tuberculin subcutaneously as a means of diagnosis. Provided this is used only under certain well-defined conditions, in my opinion it may be employed with perfect safety. The conditions are these: Never use it if the mouth temperature reaches 100° F.; if there has been a recent attack of haemoptysis; if there are evidences of extensive bronchitis or bronchiectasis, or definite physical signs of pulmonary tuberculosis or tubercle bacilli in the sputum. On the other hand, if these conditions are fulfilled and a certain diagnosis cannot be made by other means, it is of the greatest value and should be resorted to. It is true that cases have been recorded in which a definite reaction was obtained in apparently non-tuberculous subjects, especially in those who have had syphilis (although there was no certain proof that these cases were free from tuberculosis in some part of the body), and undoubtedly some cases of pulmonary tuberculosis do not show a reaction, yet it is an almost absolute test, and in clinical medicine there are very few tests which are absolute. It should be remembered that the reaction may be due to a tuberculous focus in some other part of the body than the lungs and pleura. It is best to begin with 0.001 c.cm. of tuberculin (1 mg.). If no reaction follows within forty-eight hours, administer a second dose twice as large. If there is even a slight rise of temperature following this, repeat the same dose in forty-eight hours. If the reaction to the second dose of the same size is more marked than was the reaction following the first dose, then you may be sure you are dealing with a case of tuberculosis. If these doses fail to produce a reaction, 5 and finally 10 mg. may be used. In regard to von Pirquet's cutaneous reaction and the conjunctival test (Calmette), unfortunately not infrequently it is difficult to say whether the reaction is positive or negative. In both there may be no reaction in the last stages of tuberculosis. Von Pirquet's test can be employed in pyrexial cases. It is more valuable in children, especially in the first three years of life, than in adults.

A reaction always occurs when there is pathological evidence of tuberculosis, though there may be an absence of clinical evidence. The ophthalmo-reaction should never be employed if any affection of the eye is present. Even apart from these cases it is undoubtedly attended with some risk. This test is more in harmony with clinical experience than von Pirquet's.

My opinion is that neither of these tests is nearly of such diagnostic value as the subcutaneous tests.

THE INFLUENCE OF STRONG, PREVALENT, RAIN-BEARING WINDS ON THE COURSE OF PHTHISIS.

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I HAVE repeatedly—and, I venture to believe, conclusively—shown that strong, prevalent, rain-bearing winds exercise a powerful influence over the prevalence of phthisis. I now propose to show that *probably* they also exert an influence on the course of the disease.

There are several lines of inquiry which may be followed in order to ascertain whether these winds do exert an influence on the course of phthisis or not. We may (1) make continuous clinical observations on phthisis cases in some single locality under varying conditions of wind and rain; or (2) we may clinically observe and compare the effects on a series of phthisis patients of residence in sheltered and exposed situations; or (3) we may compare the collective results obtained by similar methods at differently located sanatoriums—some in shelter, some exposed; or (4), lastly, we may compare the average durations of fatal cases whose course has been run in places which present a suitable contrast of shelter and exposure.

It is to this last line of inquiry that I would now especially invite attention. I shall only refer to the three others in order to make clear that they all, so far as I have been able to follow them, seem to lead to the same conclusion.

1. *Observation of Patients in a Single Locality Under Varying Conditions of Wind and Rain.*

This is a line of inquiry which lies peculiarly within the province of sanatorium physicians, and to them one must ultimately look for the width of experience requisite to enable us to form a judgement. My own opportunities have been necessarily very limited. But when, some years ago, the "open-air" treatment began to be introduced into this country and when we were treating a number of cases in connexion with the Royal Devon and Exeter Hospital, it seemed to me that windy and rainy weather unfavourably affected them. About the same time a friend of mine, who had medical charge of a "home for consumptives" at the top of a hill open to all winds, told me that his patients seemed to get on very well except when westerly winds were blowing. In 1904, Dr. A. A. Rodriguez, of Campo in the Azores, was so good as to make inquiries for me amongst the medical men practising in those islands, and told me that, whilst some had noticed no injurious effect from any wind, others had found their phthisical patients were worse when the warm and damp south winds were blowing, and others considered that these south winds did harm and that the north winds, which are dry, did good. A recent statement by Dr. H. Hyslop Thomson[1] that "the sanatorium physician knows well that such winds (strong, prevalent, and rain-bearing) are responsible for elevation of temperature and increased cough and expectoration amongst certain of his patients" is of special importance as embodying just the sort of experience which is necessary for the satisfactory following out of this method. Thus such evidence as I am aware of points in the direction of these winds affecting unfavourably the course of phthisis.

2. *Comparison of the Effects on Phthisis Patients of Residence in Sheltered and Exposed Situations.*

Here my opportunities have been more extensive, though my observations have been far too limited to be more than suggestive. It is obvious that the personal opportunities of any single observer, not specially devoting himself to the treatment of phthisis, can scarcely, in a dozen years, furnish conclusive evidence by this method. A few examples will suffice to indicate my general experience.

A young lady, after a smart haemoptysis, had been seen by me doing remarkably well in a wind-sheltered situation. But, being better, she took it into her head to go for a "bracing change" to one of our most westerly exposed hillsides. A fortnight later I was again sent for. The "change" had not been a success, and she had had another considerable attack of haemorrhage.

A gipsy woman, camping in the open air on the summit of a wind-swept common, was quickly losing ground from phthisis. I got her to shift her camp to the leeside of the hill, and immediately she began to improve.

A man, who had been nursing his son who died of phthisis, developed an empyema. After this had been opened, he went to a very sheltered valley in South Devon, where he did exceedingly well. His second son came to me some time afterwards with early phthisis, and, at his father's request, I sent him to the same place. I have rarely seen so rapid and complete a recovery as the boy made.

A lady with very slight disease of one apex, which had steadily refused to clear up, spent the winter at Chagford, and when I saw her next spring the physical signs had practically disappeared. She went to an exposed health resort in another county, and there the disease broke out afresh.

This north-east slope of Dartmoor, to which I drew attention in 1900 for its comparative shelter from westerly winds and coincidentally low phthisis mortality, has since then been utilized for sanatoriums, which have given very satisfactory results, as I can testify from the cases which I have sent to them.

On the other hand, I have seen cases at various points along our southern sea-board, who had been sent from a distance to live on the actual sea-front, and had been promptly seized with acute chest complications or with haemoptysis. Yet cases suitably located, in sheltered spots at these very health resorts, do exceedingly well. In one of them several excellent medical observers have noticed that cases of haemoptysis which have proved intractable on the actual sea-front, lose their haemorrhages when removed about a quarter of a mile inland, under the shelter of a considerable hill.

Long ago Dr. Thomas Shapter pointed out how undesirable it is to place a consumptive on an exposed seashore, and Dr. Ransome has more recently emphasized the seriousness of the consequences of locating such patients on an exposed sea-front.[2] It seems to me, however, that simple aspect has a good deal to do with the effect. Thus, I remember a patient who had greatly improved in hospital, insisting on returning home to live in the open air at a seaside place which faces almost due east with considerable western shelter. She continued to do very well so long as I had news of her. Also it is not entirely a matter of distance from the sea, for a case which did badly with repeated haemoptysis, lived on a high hill facing west just above a sheltered seaside town, in which, not far from the beach, several cases I know have done satisfactorily.

An interesting observation comes from the Sandwich Islands. This group is said by Hann[3] to present "the finest example of the contrast" between a wet and windy side and a dry and sheltered side. I therefore wrote to find out what was the experience there as to phthisis cases on these two so different aspects. Dr. Grace of Hilo very kindly replied, telling me that it was universally recognized, though the explanation was unknown, that "the windward is the bad side of the islands."

Thus this line of inquiry seems to point in the same direction as the last.

3. *Comparison of the Results of Differently Located Sanatoriums.*

Here one enters on especially difficult and delicate ground. Moreover, I imagine the time is scarcely ripe for drawing conclusions of value. Yet some hints may be gained by considering in what sort of situations the most historically celebrated phthisis health resorts have been established. Dr. E. Campodonico of Lima has recently been so good as to send me particulars of the celebrated resorts in the Peruvian Andes. He writes:

The most famous health resort for phthisical patients in Peru is the territory of Junin, where the towns Tarma, Jauja, Huancayo are located. This region, watered by the river Mantaro, stands at about 3,000 metres above the sea level, on the eastern side of the Andes. . . . These towns are protected

by the lofty range of the Andes, which deflects the course of the trade winds, so that any regular wind blowing there can hardly be spoken of. The climate is very dry, and, although the rainfall reaches a high point in the months of December, January, and February, when sudden and frequent showers occur, the water dries away rapidly. Metal and iron tools are very rarely oxidized.

Here, therefore, there is an absence of the winds we are discussing.

Again, stillness of atmosphere is a feature on which almost all authorities lay stress in their description of the most successful Alpine resorts. Davos is remarkable in this respect. Writers, too, in no way committed to agreement with my views, have commented on the less satisfactory results obtained at equal Alpine heights, where "wind movement" is greater. Görbersdorf in Silesia, where Brehmer conducted his historical experiment of "open-air" treatment, lies in a very sheltered valley on the north-eastern side of the Carpathians. Nordrach in the Black Forest, where Walther made Brehmer's methods familiar to English medical men, also lies in a very wind-sheltered valley. Finally, the Darling Downs of Queensland and the Rocky Mountains resorts of Colorado are alike rarely visited by rain-bearing wind.

Thus, a common characteristic of all these successful climates, otherwise so strikingly dissimilar, is their freedom from strong, prevalent, rain-bearing wind.

4. *Comparison of the Duration of Fatal Cases Running their Course in Exposed and Sheltered Localities.*

Ten years ago a friend who practises on both sides of a high ridge, running nearly due north and south, told me that he had found that his phthisis patients died in a shorter time on its western slope than on its eastern. But it is only lately that the idea has occurred to me of using, as I do here, the recorded durations of the fatal cases.

The information which Dr. J. R. Harper, of Barnstaple, so carefully procured for our joint paper on the influence of strong, prevalent, rain-bearing winds on phthisis prevalence

TABLE I.—*Showing the Distribution of 153 Cases of Phthisis in Three Groups of Parishes arranged as in the Former Paper.*

I. Parishes sheltered from S.W., W., and N.W. winds. II. Parishes exposed to N.W. but sheltered from S.W. and W. winds. III. Parishes exposed to S.W., W., and some also to N.W. winds. Deaths at 50 and over are put in parentheses.

Name of Parish.	1860-1884.			1885-1904.			1890-1899.		
	Short.	Medium.	Long.	Short.	Medium.	Long.	Short.	Medium.	Long.
I.—*Sheltered from S.W., W. and N.W.*									
Bittadon	1								
Brendon			1						
Highbray	1		2 (1)						
Challacombe			1						
Trentishoe			1						
Berrynarbor	2	2	1						
Arlington			2 (1)	1		1			
East Down									
Totals	4	2	8 (2)	1		1			
	16			2					
	18								
II.—*Exposed to N.W. only.*									
Kentisbury	1								
Paracombe		1			(1)				
Martinhoe									
Combe Martin	3	4 (2)	2 (1)	1					
Totals	4	5 (2)	2 (1)	1	(1)				
	14			2					
	16								
III.—*Exposed to S.W., W., and some also to N.W.*									
Countisbury			(1)						
Bratton Fleming	1			1					
Georgeham	1	5 (2)	5 (3)	2		1 (1)	1		1 (1)
Shirwell			1 (1)	2 (1)			1		
Morthoe	1		(1)	1	1				
Braunton	12 (1)	17 (1)	2 (7)	3 (1)	8 (2)	5 (5)	1	2	4 (5)
Heanton Punchardon	3	2 (1)	1 (4)		1	1 (1)		1	1 (1)
Ashford		1	3						
Goodleigh		1	2			(2)			(1)
Stoke Rivers									
Loxhore									
Totals	18 (1)	26 (4)	14 (17)	9 (2)	10 (2)	7 (9)	3	3	6 (8)
	80			39			20		
	119								

Grand total of cases 153

in twenty-three parishes of the Exmoor portion of Barnstaple Rural District during the forty-five years 1860 to 1904, seems to me to furnish just the sort of material requisite. The records used embraced 334 female phthisis deaths over 5 years of age. For 153 of these the duration of the illness was stated, and the tables which follow are based on these 153 cases. The district was one peculiarly fitted for the inquiry, since I was personally fairly well acquainted with it, and it was intimately known to Dr. Harper, so that it was possible to very carefully assess its relative shelters and exposures; its weather had been carefully recorded, and the characters of its soil were well known. For the particulars of each parish and of the district generally I must refer my readers to our original paper or to my recently-published book.[1]

I have kept to the divisions of the period used in our inquiry into phthisis prevalence. The twenty years 1885 to 1904 were separately considered, because during them (Koch's discovery having become, presumably, a matter of general knowledge by 1884) diagnosis might be supposed to have become more precise; and an additional reason for now considering the previous twenty-five years, 1860 to 1884, separately is that after 1884 scarcely any cases with recorded durations occurred in sheltered parishes. Also the decade 1890–99, with remarkably lessened incidence of westerly winds and coincidently low rainfall, obviously should be considered separately from the rest of the period.

In order to compare the durations of the cases I have divided them into three classes—namely, (A) "short" cases, lasting nine months or less; (B) "medium" cases, lasting between ten and fourteen months; and (C) "long" cases, lasting fifteen months or more (Table I).

When we take each of these Groups I, II, and III, for the whole forty-five years, and determine the percentages of the total cases formed by the Classes A, B, and C, respectively, we obtain Table II, which shows that the percentage of "long" cases is much larger in the sheltered parishes than in the exposed, whilst the percentage of "short" cases is practically the same—a very little less in the sheltered parishes. In other words, Table II goes to show that exposure to the wind and rain tends to hasten the course of the disease.

Group II, however, comes out the worst of the three; but here another influence has to be taken into account; the parishes of Group II are on the most generally impervious soil, and under a heavy rainfall—less heavy, indeed, than falls on Group I, but heavier than that on Group III. It is, therefore, a question how much of the shortened durations in this group may be ascribed to the effect of relative dampness of soil.

In the case of the comparison between Groups I and III, however, soil cannot have any share in creating the contrast, since any effect it might produce could only be in the direction of diminishing it, since Group III (exposed) has a lower average rainfall and more generally pervious soil than Group I (sheltered).

Taking next the comparison of the three groups during the years 1860 to 1884, Table III is obtained, which is very little different from Table II.

TABLE II.—*1860 to 1904.*

	III. Exposed to S.W., W., and some also to N.W. (119 Cases.)	II. Exposed to N.W. only. (16 Cases.)	I. Sheltered from S.W., W., and N.W. (18 Cases.)
	Per cent.	Per cent.	Per cent.
Long...	36	18	61
Medium	36	51	12
Short	28	31	27

TABLE III.—*1860 to 1884.*

	III. (80 Cases.)	II. (14 Cases.)	I. (16 Cases.)
	Per cent.	Per cent.	Per cent.
Long...	36	21	62
Medium	38	51	13
Short	26	28	25

After 1884 we may compare the durations of cases in Group III alone under the varying conditions of wind and rain, which are shown in the Chart, Figs. 1 and 2. These are shown in Table IV.

Rainfall, Westerly Wind Frequency and Duration of Phthisis Cases, Barnstaple District, 1860–1904.

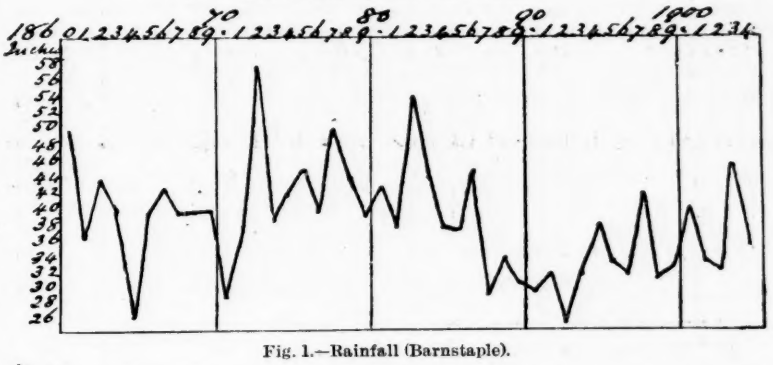

Fig. 1.—Rainfall (Barnstaple).

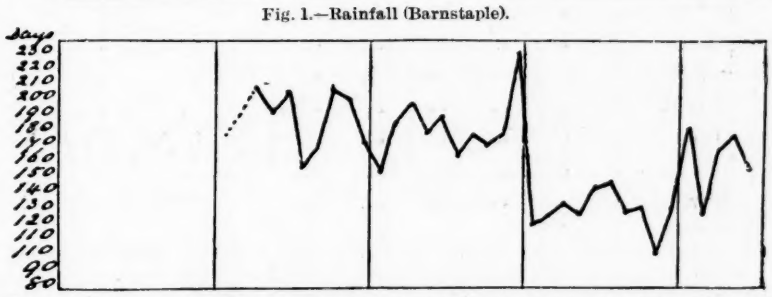

Fig. 2.—Frequency of S.W., W., and N.W. winds (Barnstaple), showing the number of days on which they blew at 9 a.m.

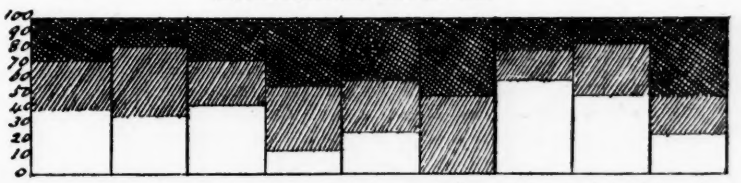

Fig. 5.—Percentages of "short," "medium," and "long" cases of phthisis under 50 years of age in successive 5-year periods. "Short" cases, dark shading; "medium" cases, light shading; "long" cases, white.

TABLE IV.—*Group III.*

	1860 to 1884 (80 Cases.)	1885 to 1904 (39 Cases.)	1890 to 1899 (20 Cases).
	Per cent.	Per cent.	Per cent.
Long...	36	42	70
Medium	38	31	15
Short	26	27	15

We see that the percentage of "long" cases became much greater and that of the "short" cases became much less during 1890 to 1899, when the rain and wind were remarkably reduced, than they had been in the wetter and windier period—in other words, Table IV, like Table I, goes to indicate that exposure to wind and rain tends to hasten the course of the complaint.

Elimination of the Influence of Social Advances.

But it might be objected that this lengthening in the duration of the disease in a later period might have been only a concomitant of that steady lessening of phthisis prevalence which has been going on in this country for fifty years or more, owing doubtless to improving social conditions of various sorts. Possibly this is partly true.

Fig. 3, however, showing the phthisis curve (of deaths occurring in each year) from 1860 to 1904, whilst it illustrates indeed the lessening prevalence, equally indicates the influence of wind and rain; and Fig. 4, showing the annual number of fatal cases originating in each year (obtained approximately from the stated durations), makes this influence of rain and wind even more obvious. In order to discover whether a curve in any way comparable to these curves can be obtained from the durations of phthisis cases, Fig. 5 was constructed (of the cases dying

Phthisis—Female Deaths in 23 Parishes of Barnstaple Rural District.

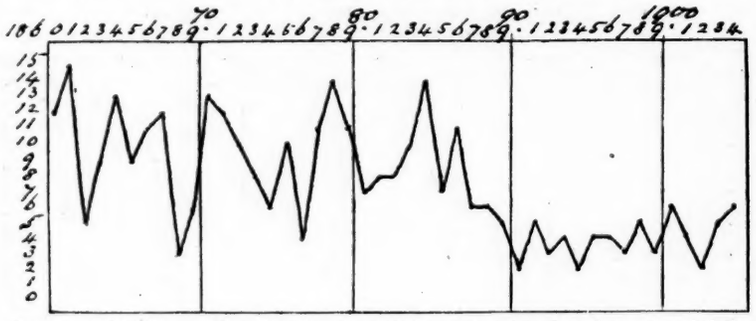

Fig. 3.—All deaths, whether duration is stated or not, referred to the years of their occurrence.

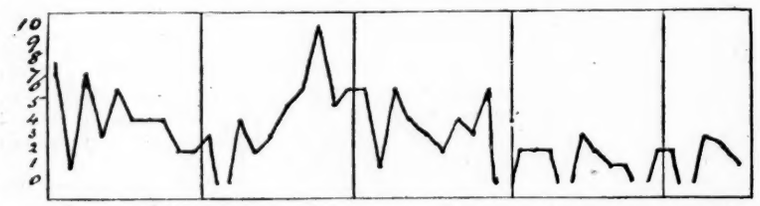

Fig. 4.—All the fatal cases of phthisis whose duration is given referred approximately to their years of origin.

under 50), showing the relative percentage of "short," "medium," and "long" cases in each successive five years between 1860 and 1904. The curve so obtained is, I think, remarkable, indicating most suggestively a relation between (*a*) rain and wind incidences, (*b*) phthisis prevalence, and (*c*) phthisis duration.

Elimination of Error Possibly Caused by Age.

In going through the cases, however, it was impossible to avoid observing how often a "long" duration was associated with an advanced age. Table V was therefore

TABLE V.—*Whole 45 Years.*

Ages.	Short.	Medium.	Long.
-9	1	1	1
10-19	8	8	6
20-29	17	18	14
30-39	9	8	8
40-49	3	6	5
50-59	4	4	16
60-69	—	4	9
70 and over ...	—	2	3

constructed, to ascertain how far age exercises a disturbing influence.

From this it is obvious that, over 50 years old, age does seem to considerably affect the case-durations. Accord-

TABLE VI.—*1860 to 1884, Cases under 50.*

	III (50 Cases).	II (11 Cases).	I (14 Cases).
	Per cent.	Per cent.	Per cent.
Long...	20	18	56
Medium	46	46	16
Short	34	36	28

TABLE VII.—*Group III, Cases under 50.*

	1860 to 1884 (50 Cases)	1885 to 1904 (26 Cases).	1890 to 1899 (12 Cases).
	Per cent.	Per cent.	Per cent.
Long...	20	29	50
Medium	46	38	25
Short	34	33	25

ingly, it appeared desirable to recalculate Tables III and IV with the exclusion of all cases dying at 50 and over. Tables VI and VII were thus obtained. They tend to show even more strikingly than Tables III and IV the unfavourable influence apparently exerted by exposure to the strong, prevalent, rain-bearing winds. Long cases are much commoner and short cases much fewer under the less exposure to rain and wind.

To conclude, it seems to me that these tables and curves, taken in conjunction with the other evidence to which I have alluded, constitute a considerable prima facie case for the contention that exposure to strong, prevalent, rain-bearing winds tends to exercise an unfavourable influence on the course of phthisis. How far treatment may prove equal to neutralizing this unfavourable effect of these rainy winds remains to be seen. The cases here dealt with were mostly treated before the days of modern sanatorium methods.

I take this opportunity of expressing once more my great indebtedness to my friend, Dr. Harper, for the invaluable help his careful information has afforded me.

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[1] *British Journal of Tuberculosis*, July, 1910, p. 198. [2] *The Treatment of Phthisis*, London, 1896, p. 133. [3] Hann's *Handbuch der Klimatologie*, vol. i, p. 292. [4] *The Influence of Strong, Prevalent, Rain-bearing Winds on the Prevalence of Phthisis*, Lewis, London, 1910, pp. 61-78.

An Address

ON THE

PREVENTION AND TREATMENT OF PULMONARY TUBERCULOSIS.

DELIVERED BEFORE THE MEDICAL AND SCIENTIFIC SOCIETY, UNIVERSITY COLLEGE, DUBLIN.

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MR. PRESIDENT, LADIES, AND GENTLEMEN,—It is my first duty and pleasure to thank you for the honour you have done me in asking me to deliver the address inaugurating the present session of our society. The subject I have chosen is the prevention and treatment of pulmonary tuberculosis—a subject in which I am myself particularly interested, and one in which every medical practitioner in these countries must take the greatest personal interest, since tuberculosis is the captain of the men of death in these lands, and therefore it must form a large proportion of the cases with which the physician has to deal. Moreover, it is a disease which taxes all one's resources and skill to deal with effectually.

I do not, of course, propose to deal exhaustively with the subject in this short paper, but shall only attempt to emphasize certain measures of prevention and treatment which I think will strengthen our hands in dealing with the disease.

It will be well first to know the mortality and incidence of the disease at the present day. In Ireland last year over 10,000 individuals died of tuberculosis, of which 7,527

were affected by the pulmonary form. In 1909 over 38,000 people died of the pulmonary form in England, so that we may take it that about 50,000 people die of the pulmonary form each year in the British Isles.

Now there are two questions to be asked—Is the death-rate from tuberculosis falling? and if it is, Is it falling faster than or as fast as the general death-rate?

The death-rate in Ireland from the disease was 2.3 per 1,000 in 1900; in 1910 it was 1.7 per 1,000—a marked diminution. Now as to the second question, I am quoting the deductions of Professor Karl Pearson,[1] which I think are the most accurate attainable.

He illustrates the facts by three diagrams. To the graphic records of deaths per 1 000 from all causes are fitted "regression straight lines," which show that they are three distinct periods: from 1835–1866 the average death-rate fell very slowly, from 1866–91 it fell much more rapidly, and from 1891 to 1910 it fell more rapidly still.

Now how does the rate of death from tuberculosis compare with the general death-rate? The records of deaths from phthisis up to 1847 were only partial, but so far as could be made out the fall in the death-rate from it between 1838 and 1847 was immense. The first regression line is fitted only from 1851–66, and shows a marked decrease during the years in which we have seen there was little decrease in the general death-rate. During the next period (1866–94) the fall was accentuated. But during the third period (1894) to the present day the line shows there is a distinct retardation in the rate of the fall. And this has occurred during our period of greatest knowledge and most active campaign against the tubercle bacillus.

The percentage of deaths from phthisis of all deaths from year to year for the last sixty-six years—from 1847 on—shows a fall of from 13 (8 per cent.) in the case of males and of 15 (6 per cent.) in the case of females. But it brings out the grave fact that for the last fifteen years the percentage of deaths from phthisis in the case of males shows a slight rise, while for females the apparent slight decrease is really a rise if we only consider the last ten years.

To sum up, Pearson says: "The relative number of deaths from phthisis has not been diminished by the campaign against the tubercle bacillus, although the absolute number has fallen, but at a sensibly retarded rate."

Now as to the infectivity. The table given by Hamburger and Monti comparing the prevalency of tuberculosis in Vienna determined by autopsy and tuberculin tests will give us some idea of it. So that, taking the lowest figures, we see that the majority of children who reach the age of 14 have been infected. While if we accept Hamburger and Monti's figures we see that 94 per cent. have the bacilli in them. Yet, since the death-rate from tuberculosis in Vienna is only 15 per cent., 80 per cent. have sufficient resistance to prevent the disease killing them. These figures are probably outside ones, but we may take it that the majority of people are infected by the microbe at some time or other.

Man is infected with Koch's bacillus from two sources. First by bacilli that have been living in other human beings, and secondly, from bacilli which have been living in cattle. It is said that bovine bacilli are the chief cause of surgical tuberculosis, and that human bacilli are the chief cause of pulmonary; but undoubtedly the human type can cause surgical and bovine pulmonary tuberculosis. So that if we want to cut off the sources of infection we have to deal with infected cattle and infected human beings.

The great source of bovine tubercle bacilli is milk, which is partaken of raw as a rule, and to a lesser extent meat. The system of dealing with these sources at present in vogue if conscientiously applied ought eventually to lead to the complete elimination of this source. That it is not conscientiously applied at present in Ireland the evidence given before the recent Viceregal Commission plainly shows.

The other source of infection, namely, the infected human being, and how to prevent him from infecting others is a much more difficult problem.

A person with pulmonary tuberculosis in whose lungs softening of tuberculous areas is going on is excreting tubercle bacilli in his sputum, faeces, and sometimes in his urine. The latter two sources have not possibly received the attention they ought, although perhaps in towns where there is a proper septic tank system they would not be a great source of infection. The contrary, however, may be the case in rural districts and where the sewage is treated by means of sewage farms.

With regard to the sputum a known consumptive can be supplied with a spitting flask containing disinfectant, and so the large masses of purulent expectoration disinfected. But one cannot properly control the fine atomized spray given off when the consumptive coughs, which carries tubercle bacilli in its droplets, and these fall on objects around, dry, and infect the dust; a patient who is warned may control this to a certain extent by a handkerchief, but such control can be only partial and he is bound to infect his bedroom during sleep.

Such a patient, then, is bound to be infectious, and ought to be isolated in a suitable institution. Since this is as a general rule impossible under present conditions, then he ought to sleep in a separate apartment, and those who attend to that room ought to take the same precautions against infection as if it harboured a case of typhoid fever; and, further, when the patient vacates that room it ought to be as thoroughly disinfected as if it had contained a case of small-pox. I can recall an instance where member after member of a family who occupied a certain bedroom became infected, until the room was thoroughly disinfected, when the plague was stayed in that house. Some figures quoted a few years ago by Professor McWeeney bring out the necessity for this measure. Certain Paris lodging houses, numbering 820, and containing in twelve years 106,308 persons, yielded 11,500 deaths in this period. The worst of these houses, known as *hôtels garnis*, actually had a death-rate of 42 per thousand from phthisis in certain wards in Paris.

The habit of promiscuous spitting ought to be put down with a strong hand. Could not suitable spittoons be placed at intervals in our streets to accommodate those members of the community whose handkerchiefs consist of their fingers and thumbs?

The ideal measures for dealing with the disease are those one would use for any infectious disease—namely, notification, isolation, disinfection, and supervision of contacts.

Notification has at last arrived, complete isolation seems

Prevalency of Tuberculosis as determined by:

	Autopsy.		Tuberculin Reactions.			
			Cutaneous.			Cutaneous and Injectional.
Investigator.	Lethal and Non-Lethal. Ghon.	Only Non-Lethal. Ghon.	v. Pirquet.	Ganghofner.	Hamburger and Monti.	Hamburger and Monti.
Second year of life	40	17	2	12	9	9
Third and fourth years	60	30	13	27	23	27
Fifth and sixth years	56	34	17	47	36	51
Seventh to tenth years...	63	35	35	57	47	71
Eleventh to fourteenth years	70	53	55	70	51	94

to be at present impracticable, disinfection can be accomplished and also the treatment of contacts.

Much good work has been done in Ireland by the Women's National Health Association in teaching the people the infectious nature of the disease and making them afraid of it, and in many other ways. I need not go further into the other general measures, such as special dispensaries for advice, diagnosis, etc., special hospitals in the cities, and sanatoriums in the country. No one can deny the value of the latter as educative establishments and places for isolation. Their curative value will be discussed later.

There is just one other point I should like to mention before leaving this part of the subject, and that is that tubercle bacilli received direct from a bad case of the disease are more virulent than if they have been some time isolated from him. So that, just as in the case of smallpox, a susceptible individual, if he gets the disease, will hand on a more virulent strain to those he infects.

Since the Vienna figures quoted above show how ineffectual are our methods of preventing the infection, we have to rely on the natural immunity of the healthy individual to resist the disease, and this seems to be effectual in Vienna in about 80 per cent. of the people who receive the infection, so that if one could make the other 15 per cent. or so like unto the 80 per cent. our object would be accomplished.

In order to keep in good health we must live in decent, well-aired houses, be sufficiently clad, have sufficient and uncontaminated food, sufficient exercise, and must breathe through our noses, so that the air may be warmed and be filtered free from microbes.

Every one, I think, realizes the importance of providing proper housing and sufficient money to supply proper food, and of lessening the opportunities of having that money spent on alcohol.

The system of school inspection is doing away with nasal obstruction in children and attending to other abnormalities.

I believe the proper feeding of the infant has a most important bearing on its health in after-life and his resistance to disease. A sound digestion is the first essential of health, and a child who has been improperly fed during the first nine months of his life starts with an impaired digestion. There is no substitute for its mother's milk. The nearest approach appears to be milk direct from the goat. Even if one can give in a bottle the proper proportion of carbohydrates, fats, and proteins, one cannot give it the natural ferments, including antimicrobial substances and neurones.

I do not believe the majority of women who say they cannot nurse their babies. How often have I seen a few bottles of malt extract produce an abundant supply of milk. A woman who does not nurse her baby when she can, knowing, as she must, that any bottle may contain its death warrant, is, in my opinion, guilty of a very grave social offence. Doctors and nurses, I am afraid, are too prone not to emphasize the importance of this.

Next, why is it that a certain percentage of the community have naturally a low resistance to the disease, and can we correct this? Undoubtedly, the answer to the first question is that the low resistance is most often inherited. Pearson has shown that there is a resemblance between parent and offspring in the matter of tuberculosis of 0.5, and this as between father and child is as close as between mother and child. (The resemblance between husband and wife is from 0.25 to 0.3.) Can this be corrected? I think it can. I consider that every member of a tuberculous family should have his resistance to the disease increased by a series of increasing doses of tuberculin. I have practised and do practise what I preach, and have found that in such individuals the injections act as a splendid tonic, the patient expressing himself as feeling more fit and energetic than before. I believe the mother of a child whose father is tuberculous should be inoculated while she is pregnant, or if not then when she is nursing the child. If she is tuberculous herself the problem is more difficult, as she may not be fit for inoculation. However, she may be rendered fit for it by appropriate treatment, or if not, the baby can be inoculated some months after.

By this means one can bring up the resistance of these susceptible children from subnormal to normal; indeed, their resistance for a time at least is well above normal. Maragliano states that after using his tuberculous vaccine he found after three years that the patient had three times the agglutinating power of a normal individual. Even if the specific immunizing substances fade away after a time, yet the mechanism for the production of these substances has been produced and can in all probability be aroused to activity with greater ease than in the normal individual. It is, indeed, a question that ought to be considered whether every one ought not to be prophylactically inoculated against the disease. I inoculated my own baby when she was 3 months old.

Turning now to the question of treatment of the individual infected with the disease, it will be useful to give a classification of the forms the disease takes.

The first division is into *acute* and *chronic*. The acute can be further divided into four subdivisions—namely:

1. Acute miliary, generalized.
2. Acute miliary, of the lungs alone.
3. Acute lobar pneumonia due to the tubercle bacillus.
4. Acute bronchopneumonia due to the tubercle bacillus, and generally called "galloping consumption."

The chronic forms are most usefully classified for purposes of prognosis and treatment into four classes, according to the extent of the lung diseased.

In Class I the lungs have so slight an involvement that there are no physical signs. The patient may have a slight cough, a subnormal temperature, and is easily tired.

In Class II are those in which there are the earliest physical signs, generally in an apex, while the temperature does not go to more than about 99.6°, and the small amount of sputum does not contain tubercle bacilli.

In Class III are those in which there are moist sounds in the lungs, the disease being more extensive and the consolidated lung is breaking down. The temperature is sometimes, and in the worst cases, subnormal, but usually rises to 100° or more. Tubercle bacilli are present in the sputum.

In Class IV are those with extensive disease, large cavities, and septic temperatures. Tubercle bacilli and myriads of other microbes are present in the sputum.

Of course, all cases of phthisis do not fall into these groups, for one finds all sorts of modifications and combinations.

It is obvious that it is of supreme importance to diagnose the disease at the earliest possible moment. I shall not have time to discuss the diagnosis of the acute forms, which are only a small number of cases, but shall confine myself to the diagnosis of the chronic forms.

When there are well-marked physical signs in the lungs and tubercle bacilli in the sputum there is no difficulty about diagnosis, but when there are no physical signs, or when these are present to a slight extent but there are no tubercle bacilli in the sputum, it is another story.

Modern laboratory technique, and our growing but still imperfect knowledge of immunity reactions, have given us several methods of diagnosis. They are:

The tuberculo-ophthalmic reaction of Calmette.
Various skin reactions, such as that of von Pirquet.
Estimation of the opsonic index to the tubercle bacillus.
Local and general reactions produced by inoculation with old tuberculin.
The demonstration of tubercle bacilli in the blood.

Sometimes when tubercle bacilli cannot be found in the sputum they can be found in the faeces, and sometimes when they cannot be found in either by the usual methods they can be found when a large bulk of material is treated by the antiformin method. It must not be forgotten that some tubercle bacilli are not acid-fast, and that there are other acid-fast bacilli which are not tubercle bacilli.

The ophthalmic reaction has been and is extensively used, but there have been some disasters to eyes although it appears to be safe enough if there is no conjunctivitis. There can be no objection to the skin reactions nor to the use of the opsonic index. Old tuberculin injections can be used with safety in incipient cases.

The demonstration of tubercle bacilli in the blood is difficult and there are many differences of opinion as to its practicability.

My own procedure in a doubtful case is as follows: I first do von Pirquet's skin reaction; if this is negative I do it again; if it is again negative I think the case is not tuberculous; if it is positive in an individual above 5 years

old I think the reaction may be due to an old healed focus or to an active lesion. I then give injections of old tuberculin, beginning with $\frac{1}{10}$ mg.; if there is a rise of temperature of 1° or more I think there is an active form of disease and a local reaction indicates the place where it is. If there is no reaction, I increase the amount through $\frac{1}{5}$ and $\frac{2}{5}$ to 1 to 2 mg. If there is no reaction after any of these, I think there is no active tuberculosis present. In later cases, where the diagnosis has to be made between lung lesions due to the tubercle bacilli and those due to other organisms, it may not be justifiable to use the old tuberculin test, although iodoform injections can control a severe reaction in most cases. I then use the opsonic index; an index below 0.8 or above 1.2, or, better still, a fluctuating index, suggests the presence of active disease.

Unfortunately, in some cases the first indication the patient has is the occurrence of a haemorrhage. This is a common mode of onset in athletes, and is in itself practically diagnostic. If tubercle bacilli cannot be found in the blood-stained sputum the disease can be diagnosed by the procedure just sketched.

In the treatment of tuberculous disease a stitch in time saves so many others that no trouble ought to be too great either for the physician or the patient in order to make a diagnosis.

TREATMENT.

The means we have at our disposal for the treatment of the disease are broadly three in number:

1. The open-air treatment in hospitals and sanatoriums.
2. Therapeutic immunization with one or other of the tuberculins.
3. The exhibition of drugs for bactericidal purposes.

Sanatorium Treatment.

Of these the sanatorium treatment at present holds the field, and enormous sums of money have been spent, and, it seems, are going to be spent, in erecting fresh ones. Leaving out of consideration the value of these establishments as educative and isolating institutions, it is necessary to find out their value as a means of cure. Are the results of treatment in them better than the results of treatment in presanatorium days? I am not myself competent to answer the question, neither do I think that physicians interested in sanatoriums can form an unbiassed judgement. A careful actuarial examination has been made by Elderton and Perry, in the department of applied mathematics, University College, London, of the death-rate of patients who have been treated in sanatoriums, and these have been compared with similar statistics of presanatorium days. The results of sanatorium treatment in England, United States, and Germany are included. The conclusions they come to are as follows:

1. The mortality of tuberculous patients who are undergoing or have undergone treatment is much heavier than that of the general population, and even when the disease is taken in the incipient stage the mortality is about four times as heavy.
2. The mortality of the apparently cured cases is about twice as many as that of the general population.
3. The mortality among sanatorium patients does not show any improvement on that of Williams and Pollock's cases (that is, presanatorium cases). The comparison is, however, rendered difficult by the way the older figures were given.

They say in a footnote that the investigation of further material since these results were come to only confirms them. Moreover, these results are chiefly from sanatoriums where people of professional standing are treated, and therefore ought to be able to carry out the hygienic measures they have learnt after they leave the institutions. That the permanent results are not satisfactory is also suggested by the fact already stated that the fall in the number of deaths from phthisis as compared with that of all other causes has ceased; in fact, the percentage is rising.

As to the immediate results of sanatorium treatment, I cull the following figures from 1,200 odd cases treated at German working-class sanatoriums where the minimum stay was ninety days.

Condition on admission very good in 0.0 per cent., good in 30.7 per cent., unsatisfactory in 38.6 per cent., bad in 30.7 per cent.; on discharge was very good in 22 per cent., good in 73 per cent., bad in 5 per cent. Average increase in weight 12½ lb.

On admission 88.7 per cent. had both cough and expectoration: on discharge 67.4 per cent.; 27.2 per cent. had neither. Out of every 100 who had tubercle bacilli in sputum on admission (51.0 per cent. had), 70.2 still had it on discharge. Of those admitted only 20.8 per cent. were febrile. Out of every 100 that were febrile on admission, 75.5 were so on discharge, and only 24.5 were considered to have a normal temperature; 4.4 out of every 100 patients with a normal temperature developed a febrile temperature at the sanatoriums.

Night sweats: 31.7 per cent. had night sweats on admission. Of every 100 who had, 90.9 had not them on leaving.

These were a favourable lot of cases, only 20.8 per cent. had an evening temperature of 99.2°; and only 51 per cent. had tubercle bacilli in their sputum, yet the majority of those who had a temperature and bacilli still had them on discharge. However, the general health of 95 per cent. of those admitted had more or less improved. And 22 per cent. of them were in "very good" condition, which, I take it, means apparently cured.

I wish to emphasize the fact that half of these cases belonged to Classes I and II, the fact that they had tuberculosis being diagnosed by tuberculin reactions.

Perry and Elderton estimate the death-rate of those who leave sanatoriums with arrested disease as ten times the normal, while that of those who leave with the disease still active is forty times the normal.

Of course, the results obtained by different sanatoriums vary somewhat according to the class of case admitted, the kind of treatment adopted and the careful adaptation of that treatment to each individual case. I think it would be hard by sanatorium methods to turn out better results than Dr. Paterson at Frimley, where patients are only admitted in the early stages—namely, Classes I and II—and where by carefully-regulated exercises the patient is trained so that at the end of his treatment he has attained such a state of health that he can do hard manual labour for six hours a day without a rise of temperature or undue fatigue.

The conclusions I have come to as to the results of sanatorium treatment are as follows:

It can reasonably be expected to restore a good percentage of Classes I and II to their previous health without conferring on them any guarantee against reinfection.

Many cases of Class III are improved, but in the majority of cases do not lose their tubercle bacilli.

While in Class IV the treatment from a curative point of view is practically useless unless in exceptional cases.

I do not think any one can be satisfied with such results, and it appears to me absolutely essential to adopt some more vigorous methods of treatment during the patient's sojourn at the sanatorium.

Tuberculin Treatment.

I am afraid this treatment is still regarded by many with great suspicion, not having recovered from the terrible fiasco the premature use of Koch's original tuberculin produced. However, our better knowledge of immunity reactions, of proper dosage, and of the kind of cases to employ it on have reduced the risk of disasters to a minimum.

The kinds of tuberculin used are many in number and the methods of administering them vary. The majority begin with a small dose and gradually work the dose up to a large amount, while others give repeated small doses, some regulating them by the opsonic index.

Although most observers who have used the treatment speak well of it, yet it is hard to estimate the ultimate result. Trudeau has used tuberculin in a certain number of cases in the Adirondacks Cottage Sanatorium since 1890. He used chiefly Koch's old tuberculin and bacillary emulsion, his own tuberculin B, Denis's tuberculin, and tuberculo-plasmin. T.R. and tuberculol were given to a few patients.

A study of 185 patients treated with tuberculin and 864 not so treated, all of whom stayed over 90 days, showed for the early stage a slight difference on discharge in favour of treated patients. For the moderately advanced there was a very marked difference in favour of the treated—namely, apparently cured, treated 27 per cent., untreated 6 per cent.; disease arrested, treated 50 per cent., untreated 51 per cent.; active, treated 18 per cent., untreated 43 per cent.

The ultimate results obtained for one to fifteen years after discharge in 135 patients treated and 690 untreated

show that of 100 patients in the early stage treated 79 are alive, of the untreated 63 are alive, while in the advanced stage 61 of the treated are alive and 36 of the untreated.

Those who speak most enthusiastically of the treatment in this country are Nathan Raw and Camac Wilkinson, who used bovine tuberculin, which does not appear to be liable to produce so much reaction as the human type of tuberculins. Undoubtedly the method is worthy of careful trial.

Dr. Dunn, of the South Dublin Union Infirmary, has used Denis's tuberculin for some years with excellent results in a good percentage of cases.

In pulmonary tuberculosis I have not used tuberculin by itself to any extent; it has generally been used to complement or supplement the last mode of treatment I shall allude to.

Many drugs have been used in the disease, such as creosote, guaiacum, carbolic acid, formalin, etc. The one I wish to refer to is iodine given in chemical combination. The form which I have been using for several years is iodoform, and I have given it intravenously, intramuscularly, and by the mouth. The intravenous method is by far the most potent, and is the method introduced by Dewar of Dunblane, from whom I learnt it. It is given in quantities of ¼ to 1 grain dissolved in ether, with a little liquid paraffin added, two to five times a week. The veins usually selected are those of the antecubital fossa. The little operation is quite a simple one. There is no pain or inconvenience to the patient, except a certain amount of coughing, and yet I know of no procedure in medicine which has aroused more *a priori* objections to its use, the bugbears imagined being embolism, thrombosis, gas embolism from ether vapour, in fact, the immediate demise of the patient, and yet no such accident has ever occurred nor have I seen anything approaching to such an occurrence.

But if it does no harm, does it do any good? I will first quote some experimental results, and then relate some cases of my own.

Higgins of the Biological Laboratory, Ottawa, injected rabbits intralaryngeally with virulent bovine bacilli. He then waited until the rabbits, by loss of weight, etc., showed evidence of the disease, and began injecting daily $\frac{1}{10}$ grain iodoform in ether into the auricular vein. For the first week the animals lost weight, but then began to put on as much as 25 to 50 grams a day. When apparently well the lungs were examined, and it was found that the areas where the disease had been were completely replaced by healthy fibrous tissue. I can relate two cases of recovery from acute miliary tuberculosis of the lungs, both of which I saw in consultation and in both of which the diagnosis was agreed to by eminent clinical authorities. The cases were very similar.

The first was a man, aged about 35, who had been feeling ill for about three weeks. He had a patch of congestion in the lower lobe of his right lung, and fine crepitations over both lungs, with dyspnoea, cyanosis, and a rectal temperature ranging from 102° to 104° F. After the treatment commenced the temperature came down gradually and at the end of three months was normal. He has remained quite well ever since—that is, for three years—and is now in vigorous health.

The second case, a girl aged 20, had been ill somewhat longer, and the temperature sometimes reached 105°. Her symptoms and physical signs were almost identical with those of the first case. It is now just a year since I saw her first, and her temperature is normal and she is rapidly gaining weight and strength.

These cases are, I think, on a par with the experimental results in rabbits given above.

The first case I tried the treatment on was a girl aged 17 whose right lung was involved to 2 in. below the clavicle. She was regularly losing flesh, had temperature rising to over 100° F., and had tubercle bacilli in her sputum. At the end of six months' treatment there were no physical signs to be made out, she had no sputum, she felt well, and her temperature was normal. She used to drive three miles each morning to me for her injections through all sorts of weather.

The two last cases I shall mention are recent.

The first came to me on leaving hospital, where he had been treated for pleurisy, and where tubercle bacilli was found in his sputum; I found them present in large numbers. He had to go to the country for a month, where he took 10 grains of iodoform by the mouth daily. He gained a stone in weight. On returning to town he rapidly got worse, developed physical signs in the right apex, while he had pleuritic thickening over most of the left lower lobe. The temperature rose to 100.6° F. in the evening. He has now, in four months, lost all cough, has the slightest amount of expectoration with no tubercle bacilli, his temperature is normal, and he is being immunized with tuberculin, while he has never been so heavy in his life.

The second had a large amount of expectoration swarming with tubercle bacilli, and a cavity in the upper lobe of his left lung. In this case the infection was grafted on a chronic bronchitis due to the pneumococcus and *Bacillus septicus*, which also were causing chronic nasal catarrh, middle-ear disease, and perforation of the right drum. After a year's treatment the cough has disappeared almost completely, he has one small piece of sputum in the morning, which contains no tubercle bacilli. He is strong and has a normal temperature. This case has also had vaccines for the original infection.

Both these cases have been living in the city, have been pursuing their ordinary employment, and have come to me each day for their injections.

Even in advanced cases with large involvement I have succeeded in getting the temperature normal, greatly reducing and sometimes abolishing the expectoration and improving the cough. But I think cases who have had large involvement can seldom be anything but delicate in this climate, however much you improve them.

I hope I have said enough to prove that the treatment can do good. The only fact absolutely known as to its action is that it cases a leucocytosis. Dewar suggests several explanations, two of which are that the iodoform may act unchanged, that it may be split up, oxygenation of the CH group producing formaldehyde, the iodine being liberated, and both acting directly as germicides. It is quite likely that the iodoform is split up, for iodoform in solution in ether is very unstable, being rapidly decomposed, for instance, by light, with the liberation of iodine.

I think myself that one of its chief actions is the well-known action of iodine in converting toxin into toxoid, which is not poisonous, but acts as an excellent stimulant and for the formation of antitoxin. The power that an injection of iodoform has in abolishing a reaction after an injection of tuberculin would tend to confirm this hypothesis.

Since there seemed to be so much prejudice against the intravenous use of the drug, and since its intramuscular injection did not seem to be as efficient, I have tried to intensify its action when given intramuscularly by adding to it other drugs. The first I used was a 2 per cent. solution of benzoyl chloride in liquid paraffin. This drug also produces a leucocytosis, and *in vitro* dissolves the tubercle bacillus. I obtained some encouraging improvements in a few cases and a complete apparent cure in the only early case I have used it on, and I think the combination worthy of further trial.

Lately I have been using Szendeffy's combination of iodoform or iodized peptone with menthol and radium, and, although I have completely failed with it in three very advanced cases which were probably beyond all treatment, the majority of cases have very much improved. I cannot say more yet, as the cases are too recent. Unfortunately this last combination is being exploited commercially at a ridiculous price; I can make the preparation for about one-sixth what is usually charged for it. It is a pity, because the preparation is undoubtedly useful.

I think it is essential, before ending the treatment of a case, to give a series of injections of tuberculin, in order to increase the patient's immunity, and if possible to leave him with at any rate the mechanism for producing specific antibodies with ease. Otherwise the patient has no guarantee that he will be able to resist the reinfection that he is almost certain to get. The form of tuberculin used will depend on the physician's own particular fancy in this direction. I do not think T.R. a good form. A.T., I think, is; also A.F., P.T.O., P.B.E., and B.E. I have used with success in several cases a preparation of my own made by dissolving tubercle bacilli in benzoyl chloride and diluting with liquid paraffin. I usually give it combined with iodoform, the latter being given with the idea of reducing the reaction. It is a very powerful preparation, the initial dose being a millionth of a milligram and the largest dose I have used is a thousandth of a milligram. That the iodoform does reduce reaction I have proved by giving a case several doses of the combination without a reaction and then giving it without the iodoform, when a reaction occurred.

Let me end by stating that I think that the adoption of treatment with combined iodine *plus* immunization will enormously increase the output of apparently cured cases.

Time and carefully kept records alone will enable a judgement to be formed of the permanency of such results.

I look forward to the time when the resistance of the units of the nations has been so raised that it will be only exceptionally that the tubercle bacillus will be able to live in human tissues.

REFERENCE.

1 *The Fight against Tuberculosis and the Death-rate from Phthisis.* By Karl Pearson. London: Dulau and Co.

NOTES ON CLINICAL TRIALS WITH MARMOREK'S ANTITUBERCULOUS SERUM.

BY

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RECENT discussions on the value of tuberculin have shown that much diversity of opinion exists as to its efficacy. My experience with tuberculin has been unsatisfactory, but I have obtained rather more success with another agent—namely, Marmorek's antituberculous serum. This serum has been before the profession for a number of years, but no definite opinion of its utility has been formed in this country though many foreign observers have spoken very highly of it.

I here record the treatment and results of 10 cases which were treated by me in the Royal Waterloo Hospital, London, S.E. For allowing me facilities for this purpose I have to thank Dr. Guthrie Rankin.

Two methods of injection are used—hypodermic and rectal. The former is supposed to be beneficial in acute and rapidly advancing cases, while the latter is more efficacious in chronic and apyretic cases. The great drawback to the subcutaneous injection is supersensitiveness, which is common to the injection of all serums.

The dose used was 2½ c.cm., given hypodermically, until anaphylaxis was seen, when 5 c.cm. was given rectally daily for fourteen to twenty-one days. This was followed by an interval of seven to ten days without serum, which was again followed by daily injections for fourteen to twenty-one days. This routine was carried on as long as the case demanded it. Marmorek recommends that even after recovery seems complete weekly doses of 5 c.cm. should be given for several months.

CASE I.—W. S., aged 3, admitted January 9th with great dyspnoea, a harsh, dry cough, almost incessant sunken features, wasted and in an advanced stage of disease, seemed in some measure improved after four injections. By February 8th there were signs of cavitation at the right apex, and death took place on February 24th. Serum had been given daily.

Post mortem: The right pleura was greatly thickened and covered with tuberculous deposit. At the right apex a large cavity with extensive infiltration throughout the lobe was found. The left lower lobe was consolidated, and the bronchial and mesenteric glands were tuberculous.

It was notable that, in spite of the steady progress of the disease, the temperature and pulse were steadied, the symptoms were less severe, and the patient was more comfortable.

CASE II.—I. H., aged 3, was admitted December 21st with history of having recently had pneumonia, while phthisis was rampant in his family. The entire right lung was affected. The usual treatment was adopted, but the disease made rapid progress, and when serum treatment was begun on January 19th the child was almost moribund, with a temperature swinging between 101° to 104° F. By February 12th the child was eating and sleeping well, cough and dyspnoea had disappeared, and physical signs were clearing up, and on March 4th she was sent home much improved, with normal temperature and pulse. Seen a month later, improvement was well maintained, and there had been great increase in weight.

CASE III.—L. D., aged 10, admitted February 25th with tuberculous history and well-defined physical signs throughout the right lung. Serum was commenced on March 1st and continued up to April 4th, when her condition was so much bettered that she was sent to a convalescent home. The physical signs had not altered, but the temperature was normal and the weight steadily increasing. Reported on two months later the child was at school and thriving well.

CASE IV.—S. B., aged 7, admitted February 3rd, complained of rapid wasting, night sweats, cough, and dyspnoea, and was found to have definite signs in the right lower lobe, while bacilli were found in great numbers in sputum. Serum was given from February 8th to March 5th, and he was discharged on March 26th with practically no physical signs in the chest, greatly increased in weight, no cough, and no night sweats. A report on this child could not be obtained two months later.

CASE V.—G. G., aged 3, admitted February 23rd, in a very much emaciated condition, with extensive physical signs all over the left chest. Serum commenced on admission and continued up to March 26th without effect. Death took place on April 3rd, and *post-mortem* examination showed typical miliary tuberculosis.

CASE VI.—A girl, aged 6, admitted January 6th with a large indurated mass of submaxillary and cervical glands, which, in spite of antituberculous treatment for over eighteen months, had persisted. The general condition was good and the lungs were healthy. Serum was commenced on February 2nd and continued up to March 26th, when she was discharged. During this time the glands, which were about as large as walnuts, hard and adherent, diminished to the size of small almonds, and became simultaneously soft and discrete.

CASE VII.—S. E., a boy, aged 7, was admitted on January 7th with swelling around the ankle and a sinus on the external aspect of the os calcis, which had been discharging for about a month. The sinus was opened up and cleaned on admission, but when serum was commenced on January 28th had not ceased to discharge. Injections were continued up to April 2nd, when, after much coaxing, the sinus cleaned up and healed, and good movement in the joint was obtained. One cannot think that in this case the serum had much curative effect, as with the usual surgical treatment a good result would have been anticipated as soon.

CASE VIII.—S. W., aged 2½ years. Admitted February 27th with swelling in right knee. Skiagram showed definite rarefied patch in the diaphysis of the lower end of the femur, with what appeared to be a sequestrum in it, while the joint capsule was much thickened. Serum injection was commenced on admission, and continued up to April 3rd, when the patient contracted measles and had to be discharged from hospital. Before discharge a skiagram of the bone showed very slight improvement, but clinically there was no change.

CASES IX AND X.—Two girls suffering from tuberculous hip disease, with considerable deformity, and, as shown by skiagrams, considerable destruction of the heads of the femora and acetabular cavities. Serum in each case was given for about two months and a half, but recovery was not more rapid than would have been expected with strict surgical treatment alone.

At the Seamen's Hospital, Greenwich, I continued the treatment of phthisis with Marmorek's serum. Eight cases were treated, all in an advanced stage of disease, and, with the exception of one case, no improvement was noted. In this case the patient was a lad of strong physique, in whom weight and chest measurements rapidly increased, and in whom the fever and average weekly weight of sputum diminished correspondingly.

At the time of discharge, however, the sputum was still muco-purulent, and contained bacilli, and the physical signs had not much altered.

It is claimed for this serum that under its influence tuberculous sinuses of old standing rapidly cease to discharge and heal. But in those cases selected for trial this was not found to be so. It is, however, but fair to state that, besides having these discharging wounds, the three cases were in an advanced stage of pulmonary phthisis, and, although treatment extended over three months, no change took place in the amount of discharge from, in the first case, an ischio-rectal sinus; in the second, an old tuberculous empyema wound; in the third, a submental sinus.

Anaphylaxis was a troublesome feature in the administration of the serum by the hypodermic method, and the rectal method was chiefly employed.

The dose for adults was 5 c.cm. for hypodermic and 10 c.cm. in saline solution to ʒij for rectal injection. The frequent rectal injection was much resented by the patients, and this was a decided objection to the treatment.

I cannot claim on these results the success which some Continental writers have claimed. But, in my opinion, the following conclusions are warranted:

1. There is no danger in administration apart from anaphylaxis, which can be overcome by adopting the rectal method.

2. In certain cases the general improvement is most striking, although physical signs are not altered to a similar extent.

3. The undoubted success obtained in some of the cases justifies further clinical trials.

THE next examination of candidates for the Royal Naval Medical Service will be held in London on April 1st and following days. Fifteen appointments will be offered for competition. Application forms, which must be returned by March 21st, and the regulations for entry can be obtained from the Medical Director-General, Admiralty, S.W.

AS TO THE NATURE OF THE PARASITES OF LEPROSY AND TUBERCULOSIS.

BY

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In a recent communication Dr. Bayon,[1] criticising an opinion expressed by Beauchamp Williams[9] to the effect that "leprosy may be caused by, perhaps, several varieties of a highly pleomorphic streptothrix," remarks that "to suit Williams's view it"—that is to say, the parasite of leprosy—"would have to be an actinomyces also." As a matter of fact the generic terms *Streptothrix* and *Actinomyces*, and *Oospora* and *Nocardia* also, are synonymous. The first of them is used by British pathologists generally, German pathologists appear to prefer usually the second, and the other two are in common use by French pathologists. A fifth generic synonym, *Cladothrix*, has fortunately fallen out of use. Consequently, the terms *Streptothrix* and *Actinomyces* are applicable equally as the generic designation of the parasite of leprosy. For there cannot be any reasonable doubt but that the parasites which Hansen identified in the tissues of lepers and described as *Bacillus leprae*, which Deycke was apparently the first to demonstrate in culture from leprous lesions, which Rost first succeeded in growing freely on artificial media, which Williams subsequently studied in full detail, and which have been isolated during the last year or two by a considerable number of bacteriologists, all belong to one and the same species (*Streptothrix leprae*) of "ray fungus" or streptothrix.

I have seen only stained cover-glass preparations of the acid-fast, and morphologically typical, streptothrix which Deycke obtained from cases of leprosy. But by the courtesy of Beauchamp Williams I have had opportunities of examining three strains of the organism which he has isolated from cases of leprosy occurring in Persia and India, and two strains of an identical organism which had been isolated by Rost.

It is certain that these latter parasites belong to a single species which, under certain conditions of culture on artificial media, presents a number of acid-fast rod forms which are identical with the acid-fast forms recognizable in leprous granulomata. And it is evident, I think, that this parasite is that which Deycke described under the name of *Streptothrix leproides*. Deycke, however, appears to have hesitated at first to accept as the essential parasite of leprosy a micro-organism which, being a streptothrix, did not conform in growth on artificial media with the then accepted morphology of Hansen's *Bacillus leprae*. Kedrowsky[6] also recognized streptothrix forms in cultures of an organism which he isolated from a case of leprosy.

A review of modern literature concerning the parasite of leprosy shows that confusion as to the proper place in botanical classification of the specific infecting organism has been caused partly by the multiplicity of nomenclature already referred to, and partly by failure to connote the varying morphological phases of streptotricheae generally at different stages of their life-cycle. This matter was dealt with fully in the Milroy Lectures for 1910,[4] and need not be referred to again, except very briefly.

The type-form of the genus Streptothrix is represented by the tangled masses of branching mycelium found in pus when suppuration has occurred in cases of streptotrichosis. Similar tufts of branching mycelium, the branching being lateral and not dichotomous, can be demonstrated nearly always in young cultures of streptotricheae in broth. The typically mycelial stage in the growth of the parasite is succeeded successively by stages of "segmentation" and "fragmentation." Rod-shaped, bacilli-like segments become differentiated along the length of the mycelial threads. Degeneration of intervening segments of the mycelium occurs with, or very soon after, the segmentation—so that, when fragmentation follows, the original tuft of branching mycelium is replaced by a confused aggregation of bacillary forms, some of which are long and thread-like, whilst others may appear as short bacillary or spirillar forms. The occurrence meanwhile of "chain sporulation" complicates the morphological picture. In cultures on artificial media aërial hyphae grow out from the surface of the mycelium, and present single chains of spores. When fragmentation occurs the aërial hyphae become separated off from the mycelium, and then present exactly the appearance of streptococci. Later these chains break up, and the spores appear as isolated spherical bodies, or in pairs. It is probable also that endogenous spore formation occurs along the length of some of the isolated rod segments.

In an old culture of a streptothrix, therefore, one finds the following elements: Longer or shorter bacillary forms, some of which may have a spiral or wavy appearance, some of which may resemble diphtheroid bacilli, and some of which may have the stump of a lateral branch still attached; short chains of spores, which resemble exactly streptococci; and paired or isolated spores. All these elements stain deeply by Gram's method; and, except when traces of branching remain—and segments showing this may be very few and far between—the surviving elements of the original mass of mycelium are indistinguishable morphologically, according to their nature, from bacilli and cocci. Under varying accidental circumstances incidental to the examination of cultures on artificial media, the spherical spores of the streptothrix may appear in stained specimens, as though they might be streptococci, diplococci, isolated cocci, or irregularly grouped staphylococci. If a species happens to be one of the acid-fast streptotricheae, a correct morphological interpretation of specimens stained by the Ziehl-Neelsen method is obscured in another way by the fact that in many cases some only of the persistent rod-shaped or bacillary segments have acid-fast properties. Also, with most acid-fast streptotricheae, as with Koch's parasite of tuberculosis, acquisition of acid-fast properties is a matter of age. Some species which have this property develop it early and show it in nearly all of the rod segments, whilst in other species acid-fast properties are acquired only after some weeks of growth on artificial media, and then the special property is manifest only in a small minority of the segments. And so it will be found that in specimens from old cultures of a typical acid-fast streptothrix—such as *St. nocardii*, *St. eppingeri*, or *St. leprae*—which have been stained by the Ziehl-Neelsen method, not only have "bacillary" and "coccal" forms to be considered, but the bacillary forms are, apart from casual morphological variation, of two kinds—those which are acid-fast and those which are not so.

Consideration of the varying morphology of the streptotricheae generally, and of the alternative staining characteristics of the rod forms of the acid-fast species in particular, will explain readily enough the error of those critics of Rost's earlier work who suggested that what he had described rightly as pure cultures of the parasite of leprosy were merely contaminated cultures of Hansen's acid-fast "bacillus."

Something may be added generally as to the function of the spores and persistent rod forms which in old cultures succeed the original branching mycelium of the streptothrix. With most of the numerous species which have now been examined in my laboratories, there is no possible doubt as to what happens when the organism is growing under conditions of culture on artificial media. Both the spores and the persistent rod forms of an old culture are capable, on transference to a new soil, of reproducing the branching mycelium which represents the type form of the genus. Under no circumstances of artificial culture has it appeared that rod segments are produced directly from pre-existing rod segments, and without the intervention of a mycelial stage. Equally, the spherical spores invariably sprout out into a new mycelial mass—a process which can be easily watched if an old culture of a quickly-growing species is kept for twenty-four hours in a drop of nutrient broth on a warm stage under the microscope. Also, I have found clear microscopical evidence that the rod segments of a pathogenic streptothrix may develop into a new mass of branching mycelium under the conditions of parasitic life in an animal host. In some of the more slowly-growing species the intervention of the typical mycelial stage before the development of new persistent rod forms may be difficult to demonstrate when an old culture is transplanted in a fresh medium, and especially when the culture medium used is a solid one. But, as I have explained elsewhere, this difficulty arises from the fact

that, growth being very slow on artificial media, segmentation and fragmentation of the mycelial threads follow so closely on increasing growth that it is almost impossible in some species to trace continuously the true morphology of the organism.

In any case, it is certain that the typical streptotricheae present two distinct persistent and reproductive forms—spherical spores produced under conditions of artificial culture in special spore-bearing hyphae, and rod segments. Either of these produces a new mycelium when transplanted in a fresh artificial culture medium; and the rod segments, as well as the spherical spores, are capable of producing similar mycelium in the tissues of an animal host. Further, whilst we have no evidence at present that the persistent rod forms are capable of directly reproducing themselves, as such, in growth on artificial media, there is a possibility that this direct reproduction may occur under strictly parasitic conditions. This possibility is suggested by what is known of the biology of *Sporothrix schenckii*, belonging to a closely allied but somewhat higher genus of mould fungi. Some ten years ago I pointed out[3] that Sporothrix presented two different reproductive forms which may be termed provisionally, and for purposes of distinction, endogenous "spores" and exogenous "spore bodies." The type form of Sporothrix when growing on artificial media is represented by a tangled mass of branching mycelium which resembles generally that of Streptothrix, but which is definitely septate, and of coarser character than the other. As the culture of Sporothrix grows older provision for reproduction is made in two ways. Spherical "spores" appear along the length of, and within, the comparatively coarse mycelial thread; and ovoid, yeast-like "spore bodies" bud out from the sides of the primary mycelial threads and from the extremity of secondary lateral branches. In course of time the mycelium degenerates and, as such, disappears; the only remnant of it is amorphous, Gram-staining débris. The persistent recognizable morphological elements in oldish cultures are the spherical "spores" and the yeast-like "spore bodies." If some of an old culture of Sporothrix is transferred to nutrient broth and afterwards watched on a warm stage under the microscope, it will be seen that each of the two morphologically different persistent elements gives rise to a new mycelium which sprouts out from either form, exactly as the nearly similar mycelium of a streptothrix sprouts out from either the spherical spore or the rod segment.

But whilst I have not hitherto been able to find any evidence as to the direct multiplication of the persistent rod forms of streptotricheae in growth on artificial media, it is otherwise with the persistent forms of Sporothrix. In old cultures of *Sporothrix schenckii* in a nutrient broth medium there are appearances which suggest direct multiplication of the persistent yeast-like bodies. One finds in such a culture large yeast bodies, like to those which in younger cultures are seen sprouting out from the mycelium, in immediate contact with three, four, or more smaller yeast forms. Also, under the conditions of parasitic life, a direct multiplication of the yeast-like bodies, as suggested by Hektoen,[5] appears to be indisputable. If a mouse be inoculated subcutaneously with either a young mycelial culture or with an older culture which contains only spherical and yeast forms, a slowly-extending infective infiltration of the subcutaneous tissue follows. On examination after death it is found that the area of infected granulomatous tissue is thickly crowded with Gram-staining yeast forms; but no trace of mycelium can be found. The appearances are, in short, those of a yeast infection, except that the parasites are present in much larger numbers than one finds usually in an experimental yeast infection. On transplanting these yeast forms of Sporothrix from the animal tissues in an artificial medium, a growth of the typical mycelial form occurs at once, with subsequent development of the persistent forms. It should be added that my own experiments were carried out with a culture of *Sporothrix schenckii* with which Hektoen had very kindly supplied me. And a statement made in the paper referred to, that "mycelium apparently does not occur under parastic conditions," applies only to experimental infection of the mouse with the particular species. Pinoy,[8] on the other hand, has described recently natural cases of infection of man by *Sporothrix beurmannii*, in which, whilst yeast forms predominated in the tissues, mycelial forms were found in and around the capillaries of the parts infected.

In view, however, of the evidence as to the reproduction of the persistent yeast forms of Sporothrix by direct multiplication, the possibility of a similar reproduction in parasitic life of the persistent rod segments, or "bacillary" forms, of the streptotricheae has to be considered seriously. And the comparison is the more interesting when we remember that just as reliance on the morphology of one particular phase of development of the parasites of leprosy and tuberculosis as it occurs more conspicuously in the tissues has, unchecked by cultural investigation, been responsible for the inclusion of these diseases amongst the bacillary infections, so a similarly misplaced reliance on the morphological significance of a phase of the life-cycle of the parasite as it occurs in the tissues has caused error in the diagnosis of cases of sporotrichosis. It is obvious from published records that in the past certain cases of infective granulomata occurring in man, which were attributed to "yeast" or "protozoal" infection, were actually cases of sporotrichosis. The persistent yeast forms of Sporothrix in the tissues were mistaken for yeasts, or coccidia, as the case happened. It was not until Schenck succeeded in obtaining the parasite in culture, and until Hektoen added to our knowledge of it, that a correct determination of the nature of sporotrichoses was possible. Similarly Calvin, Frothingham, and Paige[2] have quite recently proved, by the isolation of *Sporothrix schenckii* from the infected tissues, the true nature of epizootic lymphangitis of horses, a disease which had been regarded at one time as a protozoal infection, at another time as a yeast infection.

The rod segments of streptotricheae generally representing persistent forms which are capable of reproducing the mycelial form of the parasite, and possibly also capable of direct multiplication as rod forms, the particular significance of the specially staining rod segments of the acid-fast species has to be considered next. The acid-fast properties are associated with the presence in the organism of special fatty bodies (neutral fats, fatty acids, and lipoids) whose biochemical relations have been studied especially by Much and his pupils. Much has shown that the fatty bodies are specific generally for the acid-fast group of organisms, and are capable of producing specific antibodies in the serum of infected animals. Thus the nastin obtained from the parasite of leprosy is capable of causing a powerful reaction when injected into patients with either leprosy or tuberculosis; and the similar nastin obtained from the parasite of tuberculosis will cause a reaction with patients having either infection. Much and Kössli have shown by a series of complement-fixation tests that other, and non-pathogenic, acid-fast organisms—a "smegma" bacillus and the "blind worm" bacillus—are capable of reacting as antigens with the serums of tuberculous patients. Wills[11] has shown, by an extended series of complement-fixation experiments, that the serums of leprous and tuberculous patients, and of lower animals which have immunized artificially against the respective parasites, contain antibodies which are specific for either organism, and also for the two non-pathogenic species, with differences which are merely quantitative. An excellent summary of the work done in the direction indicated by Much and those associated with him is given in Wills's paper, and affords strong additional evidence as to the close relationship between the parasites of leprosy and tuberculosis and certain other reputed bacilli of the acid-fast kind, whose relationship with the streptotricheae has been suspected for many years.

But whilst the acquirement of acid-fast properties is associated with the presence of certain specific fatty bodies which are apparently common to all the acid-fast group, it must be remembered that the possession of these properties is, in a sense, an accidental characteristic, and one which certainly depends to some extent on external circumstances. Experience with organisms such as *St. nocardii*, *St. eppingeri*, *St. caprae* and *St. leprae*, shows that the acquirement of acid-fast properties during growth on artificial media is a matter of much uncertainty. Sometimes a culture will show acid-fast segments within a week, or less, of the commencement of growth; in other cultures none will be found for three or four weeks. The general rule is that the older a

particular culture is the more conspicuous are the acid-fast forms.

In the case of *St. leprae* it would appear that the conditions of parasitic life specially favour the acquirement of acid-fast properties; under saprophytic conditions of growth the rod segments tend to remain non-acid-fast. With Koch's parasite of tuberculosis acid-fast properties are acquired quickly during saprophytic growth; it is only in very young cultures that the non-acid-fast forms described by Klein and others can be demonstrated.

What evidence is available on the point suggests that the acid-fast forms of Streptothrix may represent not only persistent but also specially resistant elements. The spherical spores of the streptotricheae are generally distinctly less resistant against injurious physical and chemical influences than are the spores of fission fungi; and it may be that a second resistant element—the acid-fast rod form—has come into existence. Thus, Marino[7] found that the acid-fast forms of the parasite of tuberculosis preserved their vitality for a considerable time in the intestinal canal of the leech, resisting the action of the digestive juices for as long as fifteen months. At the end of that time there was marked attenuation of virulence; but still inoculation of the parasites into the guinea-pig was followed in some cases by a very slow infection which resulted in death. There is also evidence of a probably similar kind with regard to the parasite of leprosy. It has been suggested that growth of this organism on artificial media is favoured in symbiosis with intestinal amoebae, and Beauchamp Williams[10] has recorded his own experiments bearing on this question. With certain strains of his streptothrix the acid-fast forms appeared to die out in the course of successive subcultures. Then subcultures which appeared to consist of non-acid-fast diphtheroid rod segments were mixed with amoebae. At the end of forty-eight hours the amoebae were found to be full of acid-fast rod segments. But an explanation other than that which supposes favourable symbiotic influences may be suggested. There is evidence that bacteria form a part of the natural food of the intestinal amoebae, and of *Amoeba dysenteriae* in particular. And under the circumstances it would seem most likely that the amoebae digest and assimilate the non-acid-fast segments of the streptothrix, and that in the struggle for prolonged existence other, more resistant, acid-fast forms survive, as Marino's experiments have shown to be the case with the acid-fast form of the parasite of tuberculosis which is resistant against the digestive ferments of the leech.

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AT a recent meeting of the Society of Tropical Medicine and Hygiene Dr. Stannus read a paper on pellagra in Nyasaland, in which he brought forward strong evidence of the existence of the disease in that region; and Dr. Sandwith described the work done in different States of America on the same disease. In a discussion that followed Drs. Sambon and Chalmers related the observations, already described in the JOURNAL (December 16th, 1911, p. 1613), made during the tour in pellagra-infected parts of Italy, Roumania, Hungary, the Tyrol, France, and Spain. Dr. Sambon believes that flies (*Simulium*) play a part in the spread of the disease, and the epidemiological features encountered during the tour just mentioned lead Dr. Chalmers to take the same view. The trend of opinion seems to be to some such idea, but an enormous amount of work must still be done to prove this. Already, however, it seems proved that maize is not the operative cause of the disease, and this of itself constitutes a very important step forwards in the etiology of pellagra.

A CASE OF ACTINOMYCOSIS OF THE LUNG.*

BY FRANK NICHOLSON, M.D.LOND.,
SENIOR PHYSICIAN, HULL ROYAL INFIRMARY.

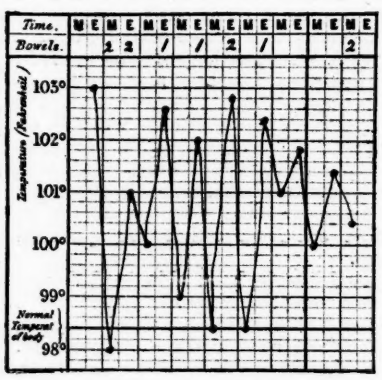
A YOUNG farm labourer from Holderness, aged 19, was admitted into the Hull Infirmary under my care on September 22nd, 1911, and died on September 30th. He gave an indefinite history, but for a year he had apparently had a cough and expectoration with night sweats and dyspnoea, the sputum being generally thick, yellow, and offensive. In April last he had had pleurisy, he said.

The family history was unimportant. Both parents are living and well, and he had four sisters and three brothers who are all well but not very robust. His own previous history was one of good health, and he had lived in the country doing farm work since he left school.

Before admission he had had little medical treatment, but for the preceding fortnight he had been under the care of Dr. Simpson of Skirlaugh, who kindly wrote to me. During this fortnight Dr. Simpson tells me the temperature was at first 102°, with pain in the knees and ankles, but subsequently did not exceed 99.4°, whilst throughout there was a good deal of cough night and morning and a considerable quantity of offensive expectoration.

On admission into hospital on September 22nd the cough was very troublesome and the sputum very profuse, fetid, and purulent. Temperature, 102°; pulse, 102; respirations, 28. At the right base posteriorly there was dullness up to the angle of the scapula, with diminished fremitus, feeble breath sounds, a few râles, and vocal resonance altered but little. The physical signs at the apex and in front, as also those over the left lung, back and front, were natural. The urine had a specific gravity of 1030, and contained no albumen, sugar, or other abnormal ingredients. The examination of the abdomen was negative. An exploring needle was inserted over the right base behind in three places, but with negative results.

During the next few days there was nothing to report, except that he seemed weaker and vomited once, on September 25th. No tubercle bacilli were found in the sputum.



Phthisis seemed excluded, as there were no tubercle bacilli in the sputum, which was very free and purulent, and an ordinary empyema was negatived, as vibrations, though diminished, were still present at the right base, and an exploring syringe drew nothing. My opinion was that he had an abscess of the lung or a localized empyema between the lobes.

As he was getting worse and a fatal termination seemed certain, a needle was again inserted in two places over the right base, but drew no pus. I asked my surgical colleague to excise one or two ribs, and attempt to evacuate the abscess. One inch of the ninth rib was accordingly excised. The lung was found solid, and there was a little pus in the right pleura. The patient unfortunately collapsed, and died on the table.

At the *post-mortem* examination the lower lobe of the right lung was consolidated, and on section presented the appearance of grey hepatization with multiple small abscess cavities scattered throughout—they were none of them larger than a large pea. As the appearance suggested actinomycosis, I had sections prepared which showed numerous small abscess cavities surrounded by dense leucocytic infiltration and bronchopneumonic consolidation, while in some of the cavities were masses of Gram-staining streptothrix having the character of the ray fungus.

Actinomycosis affected the lung in about 15 per cent. of the recorded cases, but it is quite possible it is a much more common disease than is generally believed, a certain number being looked upon as non-tuberculous phthisis.

In the *Journal of the American Medical Association* for November 4th, 1911, Dr. Bridge of Los Angeles gives details of 17 cases. In some of these there was a mixed infection, tubercle bacilli being found in the sputum, and in most of them the sputum was noted as being very fetid.

Unless the little grains of actinomyces be found in the expectoration—they have a dirty grey and yellowish appearance, looking very like the roe of the herring—or

* Read at the meeting of the East York Division.

the growth invades the chest wall and appears in the skin as a nodular irregular mass which breaks down, I think the diagnosis must be very difficult, but it is worth thinking of when the sputum is purulent and there are no tubercle bacilli, whilst there is no evidence of an empyema.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE VALUE OF ANCHORED DRESSINGS IN SURGERY.

I AM much interested in Mr. Lynn Thomas's article in the issue of the BRITISH MEDICAL JOURNAL of February 3rd, under the above heading, in which he describes as a new feature a roll of gauze fixed to a wound by deep sutures.

I have been in the habit of using an exactly similar dressing to that he describes in nearly all my operation cases for more than six years. It first occurred to me to make use of a dressing fixed to the wound by sutures in cases in which there was difficulty in maintaining the ordinary dressings by means of bandages in accurate apposition to the wound, especially after operations in the submaxillary or cervical areas. By including a thick roll of gauze in a few deep sutures of salmon-gut, I found that I was able to keep my incisions accurately covered and that the dressings applied outside it did not tend to become displaced. Following this, I made use of the dressing in abdominal cases, when I found that there was no tendency for the external dressings or bandage to slip up upon the abdomen. From that time I have used it almost invariably after all abdominal operations, for inguinal and lumbar incisions, after cervical, and frequently after breast operations. In actual practice I use a firm roll of sterilized gauze about three inches longer than the incision it is desired to cover, passing my sutures through the skin and superficial fascia, and where possible picking up in the depth of the wound some of the deeper layers, the sutures at each end of the wound being placed a short distance from the actual end of the incision. The cutaneous margins are then sewn up with a continuous thread suture, covered by the roll of gauze and the salmon-gut sutures tied over it.

In many cases I made use of no other dressing for the wound outside this, but I found, especially in abdominal cases, that patients preferred the support and the feeling of reliance given by a firm bandage, so that now I cover the gauze with wool and bandage it on. This form of dressing is particularly useful in cases in which there is much adipose tissue, as it almost entirely prevents any oozing taking place between the superficial planes of the wound. If it is desirable, as in renal operations, to make use of a drainage tube, I bring the latter through an opening in the gauze, taking care to place a suture over the latter on each side of the tube.

The dressing is certainly most comfortable to the patient, who does not feel any drag upon the wound on any movement; there is no fear of the wound becoming uncovered by slipping of the bandage, and usually, when it is removed on the sixth or seventh day, it is hardly soiled, and not adherent to the incision. My successive house-surgeons in charge of my cases have been unanimously in favour of it.

I do not claim any priority of discovery of this form of dressing; probably it was used by others before I thought of it some six years ago, in the same way that it has recently occurred to Mr. Lynn Thomas.

London, W. R. H. JOCELYN SWAN, M.S., F.R.C.S.

THE INTRAMUSCULAR INJECTION OF SALVARSAN.

IN September, 1911, a young gentleman, aged 28 years, came into my surgery armed with a note from a well-known consulting surgeon, advising that the bearer should be salivated forthwith, with the object of diagnosing between cancer or syphilis. The patient had been for some time suffering from an ulcerated tongue, with a profuse and foul-smelling discharge, and as he thought his local medical man's treatment was not benefiting him he consulted a specialist and brought his letter to me. I did not quite like the idea of salivation, and from his history and a certain hesitation in his manner when answering my question, I believed him to be the victim of syphilis, and I suggested the intramuscular injection of salvarsan, and with his consent, and also the full consent of his father, I injected the salvarsan into both glutei. He bore it well, had not a bad symptom, and his temperature never went higher than 100°. In less than a week after injection all discharge had ceased, and the bad taste had also gone (he used a liberal quantity of formamint). The tongue then commenced to heal rapidly, and on the nineteenth day after the injection it was perfectly healed, and had completely regained its normal condition, and my patient since then has enjoyed most excellent health.

I think this case is very markedly in favour of the intramuscular injection of salvarsan in syphilis, and I cannot help thinking that the danger is more in the intravenous injection than in the intramuscular, but we shall know more by-and-by, when we are able to watch whether the benefits received will be permanent. I have injected a gentleman suffering from advanced locomotor ataxia; although not by any means cured, he is well satisfied, and says he has been greatly benefited by the injection.

Eccles. ANDREW SPEARING.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

MACCLESFIELD INFIRMARY.

A CASE OF APPENDIX ABSCESS IN AN UMBILICAL HERNIA.

(By C. AVERILL, M.D., B.S.Durh., Honorary Surgeon to the Institution.)

THE patient in the following case, an adult and married woman, was admitted to the infirmary on July 3rd, with a history to the effect that on June 30th pain had commenced in an umbilical hernia of which she was the subject, coming on in spasms and lasting about an hour. On the following day she had vomited everything she took, and this had continued until admission; meantime the bowels had not been moved.

State on Admission.—The patient appeared very ill, her face very cyanosed, pulse 124, temperature 99.8°, and respirations 28. The hernia, measuring about six inches in diameter, was red and inflamed, with patches of ulceration on the skin. A hard lump could be felt in it, otherwise it was soft, and there was an impulse on coughing. The abdomen moved with respiration, and there was no pain on palpation.

Operation.—An operation was performed the same day. A vertical incision having been made over the sac to the left of the umbilicus, the former was opened, and it was found to contain gut and omentum adherent to the sac wall. On separating the adhesions a second sac was found to the right; this contained small intestine, the caecum, and the appendix, all very inflamed and matted together. On separating these adhesions an abscess containing about four drachms of foul-smelling pus was found, situated at the neck of the sac just outside the abdominal cavity, the walls being formed partly of sac and partly of intestine. The pus was carefully mopped up with dry gauze, and the abscess cavity wiped out with solution of hydrarg. biniodid. The appendix and some of the redundant omentum were removed, the adhesions separated, and the bowel returned to the abdomen; a rubber drainage tube was then inserted, extending down to the pelvis, and the wound closed. An injection of pituitary extract was given at the end of the operation. Rectal salines were ordered every two hours, and an injection of eserin gr. $\frac{1}{100}$ every eight hours.

Result.—The patient improved up to July 8th, when there was a rise of temperature and pulse-rate. On the 10th there was considerable discharge of pus from the upper part of the wound above the tube. She again improved until the 16th, when there was another rise of temperature. On the 19th, an area of redness was seen on the left side of the wound, from which a considerable amount of pus was evacuated. From this time onwards convalescence continued without further signs of pocketing, and in a few weeks the patient was discharged quite well.

Reports of Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Friday, January 12th, 1912.

T. G. MOORHEAD, M.D., President, in the Chair.

Generalized Tuberculosis with Unusual Features.

DR. W. D. O'KELLY exhibited specimens from a case of general tuberculosis with some unusual features.

The patient, M. K., aged 11, was admitted to the Mater Misericordiae Hospital under the care of Dr. M. Dempsey. The condition was regarded as tuberculous meningitis. Lumbar puncture gave a moderately clear fluid, which did not flow as if under great pressure. That fluid was examined for tubercle bacilli with a negative result. Culturally no organism could be found. There were a large number of polymorphonuclears present in this cerebro-spinal fluid, and, as it was sterile, the case was reported as probably tuberculous in origin. Von Pirquet's reaction was positive.

The following were notes of the autopsy: The body was that of a slender girl. A slight macular rash was present on the lower end of the abdomen.

Cranial Cavity.—There was a moderate amount of clear fluid at the base of the skull. The pial vessels were congested. The pia arachnoid was somewhat opaque all over, but especially at the base of the brain. A turbid fluid was present in the interpeduncular space. On the surface of the brain and on the pia miliary tubercles were not very common, except between the olfactory bulbs. On the convexity of the left cerebral hemisphere, and posteriorly, was seen a fibrino-purulent exudate, and on cutting into the brain at this point a crop of miliary tubercles could be seen in the walls of a sulcus, whilst outside this was an apparently older tuberculous focus, about the size of a bean. The spinal cord was not examined.

Thorax.—The pleural and pericardial sacs contained little fluid, and no fibrinous exudate was seen. The lungs were somewhat emphysematous, and the base of the right lung was in a state of hypostatic congestion—almost of infarction at one spot. On the surface and cut section of both lungs many small pearly-grey, semi-translucent tubercles were situated. The bronchial glands were small, and no distinct evidence of tuberculosis could be seen in them with the naked eye.

The heart showed slight patency of the foramen ovale. The mitral valve had three pieces of clot adherent to it, but Dr. O'Kelly did not regard them as vegetations.

Abdomen.—Little or no fluid was present in the peritoneal sac. The mesenteric glands were scarcely enlarged, except in one place. The lower end of the oesophagus showed ulcers rather like tuberculous ulcers of the intestine. The stomach contained some mucus and a little altered blood. The Peyer's patches were enlarged and hyperaemic, and this condition became more and more marked as the caecum was approached. Many of them showed tubercles, or larger caseous areas in their depth, which could be seen from both sides of the bowel. At one spot, rather high up in the ileum, a crop of tubercles was seen extending all round the serous coat of the bowel. They then passed along, if not into, the mesenteric vessels leading to a few enlarged, caseous mesenteric glands. Nowhere else were tubercles seen on the peritoneum, nor were caseous glands encountered except in this situation. This portion of the gut, with its mesentery attached, was removed entire, and the lumen was left intact for some time. As no ulcers were found in the rest of the small intestine an incision was made into this loop later on, and here an ulcer could be seen. The view, however, was not good, as the tissues tended to tear when any effort at flattening out this portion of gut was made. The reason of this was probably fibrosis in the neighbourhood of the ulcer. The liver and spleen showed numerous miliary tubercles on their surfaces and in cut sections. Those on the surface of the spleen were the largest seen. The kidneys showed a few miliary tubercles. The other tissues and organs were either not examined or appeared healthy.

Microscopically there could be no question as to the tuberculous nature of the process. Sections from the lungs, spleen, and liver were stained for tubercle bacilli, but none were seen. Histologically these organs showed the typical appearances of tuberculous lesions. It was, perhaps, open to question whether the ulceration at the lower end of the oesophagus was tuberculous, or whether it might not be due to *post-mortem* digestion. The section shown left no doubt as to the *ante-mortem* origin of these ulcers, and, although not showing typical giant cells, yet there were numerous lymphoid cells present and some endothelioid cells, with abortive attempts at giant cells in places. Nearer to the surface many polymorphonuclears were to be seen—evidence, no doubt, of mixed infection.

The question arose as to the mode of infection and also as to the way in which the generalization took place. Infection by the respiratory tract was negatived by the absence of anything but a miliary tuberculosis in the lungs. The infection took place by the digestive tract. There was a chronic focus in the ileum showing an ulcer and with the glands draining its lymphatics caseous. In the brain there was a subacute focus with miliary tubercles around it. All through the ileum there were evidences of acute tuberculosis, and also the same condition of things in the other viscera. The patient, in Dr. O'Kelly's opinion, was taking milk infected with tubercle bacilli. An ulcer started in the intestine, and the neighbouring glands became affected. How long this condition lasted could not be said; but suddenly an inrush of tubercle bacilli occurred, the Peyer's patches were all infected, the ulcerated area allowed the entrance of many bacilli. They caused tubercles to form on the peritoneum and along the vessels of the gut, and, almost certainly, the generalization took place by the escape of some tuberculous matter into these mesenteric vessels. One other point—Why did the ulcers occur in the oesophagus? Infection of the intestinal tract was usually due to the swallowing of infected material. Now, in the oesophagus the food was passed along rapidly, and little time was given for infection. Possibly there was some antecedent lesion, such as an abrasion caused by the passage of a bone, or a patch of necrosis resulting from the swallowing of some very hot particle of food. In some such circumstances infection might take place, but ulcers of the oesophagus appeared to be very rare, excluding, of course, the malignant variety. The textbooks made no reference to the condition. Dr. O'Kelly added that he was unable to demonstrate tubercle bacilli in the affected tissues. Numbers of sections were stained by the Ziehl-Neelsen method, especially those from the lungs, spleen, and liver, with a negative result. Even the antiformin method was unsuccessful. He still had hopes, however, of tracing the dairy from which this girl became infected.

Dr. MOORHEAD said he thought von Pirquet's reaction of very little use. He was inclined to doubt that the ulcers were of a tuberculous nature. In a similar case he had found the thoracic duct covered with tubercles, and he would like to know if the duct had been examined. It was, he thought, generally recognized that the zone at the gastro-intestinal end of the oesophagus was more likely to become ulcerated than any other part.

Dr. CROFTON inquired if any tubercle bacilli had been found in the cerebro-spinal fluid. He thought it rather exceptional for von Pirquet's reaction to be found positive in a case of generalized tuberculosis.

Dr. STOKES asked if the focus in the brain produced any sensory symptoms. Its position immediately behind the Rolandic fissure suggested the question.

Dr. O'FARRELL inquired if any culture had been made from the brain, having regard to the polymorphonuclears found in the cerebro-spinal fluid. He did not think the ulcer in the oesophagus was due primarily to the swallowing of a piece of hot food, nor to the scratch of a small bone. He asked as to the possibility of diaphragmatic pleurisy having given rise to the tuberculous infection.

Dr. BOXWELL mentioned that in a similar case of acute generalized tuberculosis in a child he had found a small circular erosion near the cardiac end of the stomach. Knowing the extreme rarity of tuberculous ulcers of the stomach, he had looked upon it as due to *post-mortem* digestion.

Dr. L. G. GUNN said that ulceration occurred more frequently at the lower end of the oesophagus, although that end of the tube had a rich blood supply. He thought a greater number of the ulcers occurring in the stomach were tuberculous than was generally supposed.

Dr. O'KELLY, in reply, said he had not much experience of von Pirquet's reaction, but his view was that a negative reaction meant that the patient was free from tuberculosis, and a positive reaction that the person had or had had tuberculosis at some time. With regard to the polymorphonuclears in the cerebro-spinal fluid, he quoted Emery's statement that when such cerebro-spinal fluid was found to be sterile one would be justified in diagnosticating tuberculosis. Of course, lymphocytes were more frequently present. He did not discover any tubercle bacilli; this he attributed to the case being very acute. Except in one case, where the oesophagus was digested, he had not previously seen erosions at the lower end. The thoracic duct had not been examined, nor was a culture made from the brain. The focus in the brain was well behind the Rolandic area. In any case the patient was comatose on admission.

Addison's Disease.

Dr. W. D. O'KELLY exhibited the suprarenal gland from a case of Addison's disease. He showed one kidney with suprarenal attached. Both suprarenals were affected. An unusual feature of the case appeared to be the downward dislocation of the suprarenal.

Dr. HARVEY gave a short clinical history of a case with an account of the morbid anatomy of the disease.

F. P., a dressmaker by trade, was admitted to the Adelaide Hospital, under Dr. Bewley, on May 22nd, 1911, complaining of weakness and vomiting. She had been very robust. In 1897 her foot had been amputated for tuberculous trouble. Subsequently she began to suffer from pain along her spine, which continued without intermissions until February, 1911, when she became noticeably weak. The weakness increased for a couple of months, when the following symptoms supervened: Insomnia, loss of appetite, with palpitation and breathlessness on the slightest exertion; constant pain in the stomach, uninfluenced by food; frequent attacks of vomiting, usually in the morning, and often followed by fainting; general languor, mental and bodily, and failure of memory.

On admission she appeared excessively weak. She was moderately well nourished, nor was there apparent anaemia. She lay sunken down in the bed, answered questions drowsily without turning her face or eyes towards her interrogator. The skin of the face and hands, and more especially that of the axillae and nipples, was darkly pigmented. Reflexes normal; slight nystagmus. Temperature irregular, generally subnormal, but rising to about 100°. Pulse weak, tension low, rather rapid (100 per minute). A trace of albumen sometimes present. There was general tenderness over the abdomen. She gradually sank, and died on June 16th, 1911. At the *post-mortem* examination very little abnormal could be made out by the naked eye, save completely caseous suprarenals, the darkly pigmented skin, and a markedly flabby heart. On microscopic examination the suprarenals were entirely caseous, none of their normal structure being discernible. The skin showed dense masses of pigment, mostly situated in the deep layer of the rete Malpighii. The heart muscle showed an extreme degree of "fragmentation." In addition to this, a miliary tuberculosis was present in the lungs and liver, and tubercles were also present in the ovary.

It would seem that this miliary tuberculosis, which had every appearance of being recent, must have come on shortly before the patient's death. The suprarenals, on the other hand, must have been tuberculous for some considerable time, and the history of the case would suggest their infection before the foot was amputated in 1897.

Dr. BOXWELL related the following case: The patient, a woman aged about 36, came under Dr. Lennon's care suffering from supposed carcinoma of the stomach. There was extreme cardiac and general muscular weakness and continuous vomiting. The thoracic viscera were normal. *Post-mortem* examination showed nothing wrong in the stomach, nor was there at first sight any abnormality in the abdomen. It was then thought that the case was probably one of Addison's disease. The right suprarenal, though somewhat tougher than usual to the touch, was apparently normal. The other suprarenal was found lying completely separated from the kidney at the bottom of an encysted collection of thin, grey, odourless pus. On a further examination of the patient at this point some black spots like freckles were noticed, but no typical pigmentation. Addison's disease being known to arise without pigmentation, and from disease of one gland alone, this case was considered as such. Microscopic section did not show much the matter with the suprarenal. A section was shown under the microscope.

Dr. O'KELLY thought that the absence of caseation in this case of Addison's disease suggested the idea that the gland, although apparently attached, was functionally diseased. He inquired why it was that in typically tuberculous cases the disease was always bilateral, and how it was that the suprarenals alone became caseous. In the case shown by him there was no evidence of tuberculosis except in the suprarenals.

Dr. GUNN remarked that it was extraordinary what bad prognosis had to be given in cases of tuberculous disease of the bones of the foot. He had seen a number of cases necessitating amputation, and in few of them were the patients' lives saved. He was inclined to look on all cases of bone tuberculosis very seriously from the point of view of cure.

Dr. PARSONS said that Dr. Boxwell's case reminded him of a patient he had in Baggot Street Hospital with persistent vomiting, which it was found impossible to stop, and she died after a week. *Post-mortem* examination showed both suprarenal glands to be tuberculous. He never suspected Addison's disease, there being no pigmentation. Acute cases, he thought, died without pigmentation.

Mr. PEARSON referred to the more frequent occurrence of Pott's caries in the upper lumbar region, which was thought to be due to the intimate relation of the thoracic duct with that region.

Professor SCOTT thought that the section from Dr. Boxwell's case was quite normal, while that from Dr. Harvey's case showed no suprarenal tissue at all. He had often wondered whether tuberculosis was really the primary disease in the suprarenal. He was inclined to the view that the first thing was an unhealthy condition of the suprarenal, which allowed the tubercle bacilli to get a footing there at a later date.

Dr. MOORHEAD inquired if any work had recently been done on the chromatin system. He mentioned that some time ago he had a case under observation in which all the symptoms of Addison's disease were present, but on *post-mortem* examination the suprarenals were found to be normal.

Dr. HARVEY, in reply, said with regard to Dr. O'Kelly's comment about the suprarenals being bilaterally affected, he thought Professor Scott's suggestion alone threw any light on the question. He recollected the case of a patient who had undergone a gynaecological operation afterwards suffering from weakness, and stimulants appeared to have no effect on the pulse. *Post-mortem* examination showed complete caseation of the suprarenal glands, but there was no other focus of tuberculosis that could be seen, nor was there any trace of pigmentation. He agreed with Dr. Gunn that in cases of amputation for tuberculosis of the bones of the foot death almost invariably followed.

Carcinoma of Cardiac End of Stomach.

Dr. BOXWELL showed a specimen taken from an old man, who had complained of pain in the stomach and vomiting at intervals for two months. From the history given and from the physical examination pyloric obstruction was suspected. Two attempts were made to wash out the stomach after a test meal, but on both occasions the fluid returned immediately, and was found to have a neutral reaction. As an attempt to introduce the stomach tube beyond the standard mark also failed, this line of investigation was immediately abandoned. It was obvious the stricture, if such were present, was cardiac, not pyloric. Further questions elicited the fact that, while liquid or pulpy food could be swallowed readily, solid food regurgitated after a few minutes almost unchanged. The patient declared he was much relieved by the treatment. Three days after he was suddenly seized with an attack of syncope but recovered in about ten minutes. A slight trace of blood was now for the first time noticed in the stools. He had two further attacks that night, in the second of which he died. The *post-mortem* examination revealed a ring-like cancer almost completely closing the oesophageal opening. Below the diaphragm the growth had eaten into the left lobe of the liver, and death had been due to the erosion of a large branch of the hepatic artery, causing the last fatal haemorrhage. The adhesion between the stomach wall and the under surface of the liver was of the feeblest, and any forcible attempt to pass the tube would certainly have ruptured this attachment. The stomach and bowel were filled with blood. A large secondary deposit on the anterior border of the liver had been partly responsible for the diagnosis "pyloric cancer."

Cancer of Bladder.

Dr. GUNN gave particulars of a typical warty carcinoma of the bladder occurring in a patient from whom a villous growth had been removed some years before, and at the time reported "innocent." Both ureters were widely dilated and thickened, and both kidneys pyonephrotic.

Perforation of the Bladder.

Dr. GUNN said the patient from whom the specimen was taken had been thought to be suffering from enlarged prostate. He was moribund on admission, and the *post-mortem* examination proved death to be due to general septic peritonitis. In the bladder were found three calculi, one in each of two lateral pockets, giving the organ the shape, and to the touch the sensation, of a large prostate gland. The third calculus had caused a perforating ulcer of the fundus, and consequent peritonitis.

SECTION OF STATE MEDICINE.

Friday, January 19th, 1912.

Dr. T. P. C. KIRKPATRICK in the Chair.

The Proposed Sterilization of the Mentally Unfit.

DR. M. J. NOLAN read a paper on this subject, in which he advanced the calculation that this line of treatment, when confined to cases of reproductive age, only amounted to some 7 per cent. of the asylum population on any given date. He invited the attention of his hearers to the probable bad effect of these operations on the mental condition of these recoverable cases, and also the probable evil effect on the healthy husband or wife of such recovered cases. He dwelt on the fact that the lines of mental inheritance followed no very definite lines, and that the sterilization of the unfit of one generation was no guarantee for the degree of fitness in the next. He pointed out that this aspect of the question became more involved when the observations made recently at the Epileptic Village Colony at Skelman, U.S.A., were taken into account. There it was noted that the mating of persons nervously unstable with those mentally deficient produced 50 per cent. of normal offspring, so that such paradoxical results would tend to reinforce the sound stocks, and that as the natural law was the survival of the fittest, Nature always kept the degenerates in the minority. In conclusion, he held that sterilization was a premature proposal, and that much could be done by legislation touching education, syphilis, drink, marriage of defective, and pathological research in mental disease, to accomplish the reduction in the number of the insane so much to be desired by all.

Causation of Insanity in Ireland.

Dr. R. R. LEEPER stated that in the course of his experience he found that in cases of insanity which did not recover, and in which recovery was not complete, a hereditary taint was nearly always present. In Ireland the most potent cause in the production of insanity was the unreformed Poor Law system. None of the recommendations by the Royal Commission upon the Feeble-minded could be carried out without Poor Law reform. The workhouses of Ireland continued to receive a number of defective and feeble-minded women, who gave birth there to numbers of illegitimate children who were defective; thus a steady stream of degenerates was yearly poured into the general population. The married habitual pauper's children were reared in workhouse atmospheres, and developed into criminals or degenerates of one kind or another. People entered into marriages without due consideration of the matter from an eugenical standpoint. They were suffering to-day, and their posterity would suffer from the neglect of Poor Law reform, as without due recognition, and obviously preventive measures, the insane population of Ireland would increase.

Dr. DAWSON said that some of the arguments brought forward by Dr. Nolan could be used against any preventive system whatsoever, and therefore proved more than was intended. He concurred with Dr. Leeper's remarks as to the necessity for Poor Law reform, on the ground (if for no other reason) that the number of mentally defective was so very marked a feature of the workhouse population. In connexion with the Royal Commission on the Feeble-minded, he had had occasion to examine all the children in the workhouse schools as well as other schools in the City of Dublin, and he found that the proportion of mental degenerates in the former was 7 per cent., whereas the average of all the schools was only 1½ per cent., which proved statistically what Dr. Leeper had arrived at by general observation. Referring to an investigation recently carried out in one of the London County Asylums, with the object of finding the number of children who had been begotten after the first attack of insanity, he stated that it was found that in the majority of cases the children had been born before the disease developed, and therefore in such cases sterilization would, of course, have been of no use. This point would have to be taken into account if sterilization was to be legalized. Still, it had been shown conclusively, by an unintentional experiment, that segregation had the power of stamping out mental defect, for in the valley of Aosta, where cretinism was formerly rife, the foundation of an institution for cretins had within forty years succeeded in banishing this form of mental disease. Either sterilization or segregation was necessary, because such measures as physical and mental training and subsequent care, though necessary and desirable for the individual, at best could only prevent the development of mental defect in himself, and could not obviate the transmission of such actual or potential defect to his posterity. Of these two measures, of course, sterilization was the cheapest, and regarding it he did not think that vasectomy would produce the unfavourable results described by the President, whatever might be the case with castration. On the other hand, the only difficulty which stood in the way of segregation was the financial, and this difficulty would in time be wiped out by the decrease in the numbers of the mentally unfit.

Dr. Cox pointed out, with regard to the question of sterilization, that it was not heard of now for the first time in this country, for in the old pre-Norman days it was carried out in Ireland to ensure the non-succession of certain chieftains. The point raised by Dr. Leeper regarding Poor Law legislation was one of more importance. All classes in Ireland revolted against its introduction, and he thought it a hardship that a tribe of vagrants worse than gipsies should, through this system, be inflicted on the country. If it were decided to prevent the propagation of the unfit it was possible the race might miss some great men owing to sterilization having antedated their natality.

Dr. NESBITT thought all scientists were agreed as to the relation of heredity to insanity, and, following Mendel's theory, there could be little doubt in the matter. This could be stopped by either sterilization or segregation. If they were convinced that heredity was of importance in this matter they should follow their views to the logical conclusion.

Dr. MAURICE HAYES remarked that there was one method of sterilization which he had not heard referred to—namely, *x* rays. It was not a permanent sterility, and there was no impairment of the enjoyment of the normal function. *X*-ray exposure caused sterility by the destruction of the spermatozoon. In the case of the female *x* rays had a similar effect on the ovaries. This treatment was not open to the same objections as others.

Drs. SEYMOUR STRITCH and SOLOMONS also spoke.

Dr. T. P. C. KIRKPATRICK said it seemed hardly possible to proceed to severe measures so long as the principles of eugenics were neglected by the people as well as by the legislatures.

Dr. LEEPER, in reply, said there was a good deal in what the President had stated in his paper, but he (Dr. Leeper) could not follow him the whole way. He had not the slightest doubt that sterilization would eventually be established. The saving in England, if sterilization were carried out, would be about twenty million pounds per annum, and this was an argument which would appeal to the people more than Mendelian laws. As to how the degenerates were to be got at, there would, he said, be a board of lawyers and doctors set up to deal with the cases. He had no doubt that if a reform of the Poor Law was effected an enormous decrease in the mentally unfit would take place. It would, he thought, be hard to decide as between segregation and sterilization.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, January 26th, 1912.

Dr. SUTHERLAND, President, in the Chair.

Muscle Transplantation for Talipes Valgus.

MR. DOUGLAS DREW showed a case illustrating the late result of muscle transplantation for the relief of talipes valgus. The peroneus brevis had been transplanted to the tibialis posticus by passing it across, beneath the tendo Achillis, and over the other tendons at the inner side of the ankle. The operation had been most successful in remedying the valgus, but a slight degree of varus had supervened. Reference was made to other cases in which a similar result had been obtained.

Haemophilia.

Dr. THEODORE THOMPSON showed two brothers with haemophilia:

(1) Aged 10 years, a poorly nourished boy. Symptoms since infancy. Bruising on very slight trauma. Bleeds for one hour

if he scratches his hand. Sometimes slight bleeding from the mouth. For several years has had attacks of pain and swelling in the knees. Coagulation time five minutes. (2) Aged 5 years. Stout and well nourished. Extensive bruising of the skin and deeper structures occurs on very slight injury. The only family history of bleeding is on the mother's side.

Cerebellar Tumour.

Dr. ERIC PRITCHARD and Mr. SYDNEY STEPHENSON showed a case. Five years ago the patient received a blow on the head. Three years ago he vomited for no apparent cause, and since then he had been subject to intermittent attacks of headache, vertigo, and sickness, which were preceded by optic prodromata, which usually took the form of fortification spectra with a brilliant range of colours. There was slight inco-ordination in walking, and Romberg's sign was present. The pupils responded to light, both directly and indirectly. There was hippus, especially in the left eye. When the eyes looked straight at an object—as, for example, the ophthalmoscopic mirror—they jerked slightly up and down. There were also jerking movements on looking inwards, outwards, and upwards. There was double papilloedema without inflammatory signs of retinitis.

Deformity of Chest.

Dr. R. C. JEWESBURY showed a case. The patient was a girl, aged 12 years. The mother first noticed "something wrong" with the shoulder ten months ago. The child had a severe fall down fifteen stairs when 3½ years old, and was considerably hurt at the time. The upper part of the right side of the chest was much flattened, the first and second ribs were sunken; bony thickening was felt on these ribs below the clavicle. The pectoral muscles on the right side looked wasted, but there was no loss of power. The radiogram showed a bony outgrowth from the first rib, projecting downwards, and articulating with a similar growth from the second rib. Cervical ribs, well developed on the right side, were present.

Hemiplegia.

Dr. R. C. JEWESBURY showed three cases of hemiplegia:

(1) Boy, aged 4 years, full-time child, prolonged labour, no instruments. Child has been weak down the right side from birth; fits, chiefly affecting the right side, from birth, causing twitching, with loss of consciousness. There is marked atrophy of the right side of the face, weakness of the right face, right arm and leg, hand and foot cold, shortening of the right leg. (2) Girl, aged 7 years, weakness down left side, noticed when 7 months old. Fits of epileptic type affecting right side first noticed five months ago. Left arm and leg much wasted, marked loss of power; shortening of both arm and leg. (3) Boy, aged 4 years. Loss of use in right hand and arm noticed about one month. Squint first noticed six months ago. Marked loss of power in right hand and arm, the arm is usually held straight downwards and is kept stiff. He walks with the feet wide apart, and keeps the right leg stiff. Weakness in right leg. Elbow-jerk and knee-jerk increased if obtained when muscular spasm is relaxed. Backward boy, and speech difficult to understand.

Congenital Pulmonary Stenosis without Cyanosis.

Dr. PARKES WEBER showed a case in a boy 6 years of age. The heart was somewhat in excess of the normal size, and over the precordium was heard a harsh systolic murmur, with its maximum intensity over the pulmonary area, to the left of the sternum.

Lymphatism.

Dr. EDMUND CAUTLEY showed a case. The patient was a boy aged 6½ years. He was tall for his age. There was an area of dullness over the manubrium sterni extending more to the left than the right, some general enlargement of the lymphatic glands and spleen, adenoids, and hyperplasia of the circumvallate papillae; the heart beat was slow, the pupils large, the complexion pale, the skin thin, with an excess of subcutaneous fat.

Shortening of Femur.

Mr. LOCKHART MUMMERY showed a case in a boy aged 7½ years. The presentation was a breech, and at 2 weeks of age something wrong was noticed with the left leg. For two years he had worn a high boot, and there did not appear to be any increase in the shortening in that time. The left leg was 1½ in. shorter than the right, and this was practically entirely in the femur. The angle of the neck of the femur was slightly reduced on the left side. It was considered that the shortening might be due to an injury to the upper femoral epiphysis at birth.

Tuberculous Tumour of Dura Mater.

Dr. EDMUND CAUTLEY showed a specimen from a child aged 14 months.

Radical Cure of Inguinal Hernia in Children.

Mr. PHILIP TURNER read a paper, the object of which was to bring forward a modification of the usual operation for this condition. By the method the least possible damage was inflicted upon the walls of the inguinal canal, and the sac was efficiently removed. The operation which Mr. Turner performed was as follows: The external oblique aponeurosis was exposed by a short incision above Poupart's ligament, external to the external abdominal ring. A short ½ in. incision was made through the aponeurosis just above the middle of Poupart's ligament; the internal oblique was retracted, and the cord, covered by the cremaster, exposed just below the internal abdominal ring. By blunt dissection the cord and sac were drawn through the small incision in the external oblique; the sac was readily isolated and ligatured at the internal ring and removed, the small incision in the external oblique aponeurosis being closed with a few catgut sutures.

BALNEOLOGICAL AND CLIMATOLOGICAL SECTION.

Thursday, January 25th, 1912.

Dr. G. H. THOMPSON (Buxton), President, in the Chair.

Bubonic Plague.

DR. F. M. SANDWITH read a paper on this subject (illustrated by the epidiascope), which was discussed by the PRESIDENT, Dr. SOLLY (Harrogate), Dr. ABRAHAM, Dr. CLIPPINGDALE, Mr. MIDELTON (Bournemouth), and Dr. LIEVEN (Aix-la-Chapelle). Dr. ABRAHAM remarked that the important rôle that the lower animals played in the spread of disease was one of the most notable advances in knowledge in recent times, and he believed that the number of diseases so spread would be recognized to be greater in the near future. He instanced leprosy, the bacillus of which would probably be found to be identical with the acid-fast bacillus discovered by Mr. Dean some few years ago in rats. Dr. Bayon was now working on this subject, and his observations so far tended to prove the truth of this view. Dr. CLIPPINGDALE, referring to the matter mentioned by the President, the outbreak of plague at Eyam in 1665, said he had visited the place, and was interested to learn that the vicar had not only placed a cordon round the affected area, but outside that cordon had placed a tank of water into which money was placed to pay the people who brought food for the cloistered, plague-stricken inhabitants, thus showing on the part of the reverend gentleman a commendable knowledge of the requirements of sanitation. Mr. W. J. MIDELTON (Bournemouth) said he thought he had heard Dr. Sandwith say that pus organisms killed off plague bacilli in the buboes. If so, did not that raise the question that pus organisms might be beneficial under certain circumstances? Dr. LIEVEN (Aix-la-Chapelle) mentioned how important was the study of zoology for employment in practical bacteriology, as, for instance, the *Bacillus typho-murium* (mouse typhoid) discovered by Loeffler, which attacked only certain specimens of mice, and it was luckily that species most commonly found to which it had a predilection. The PRESIDENT and Dr. SOLLY (Harrogate) also took part in the discussion.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT a special meeting held on January 19th, Mr. H. LITTLEWOOD, President, in the chair, Dr. BASHFORD, Director of the Imperial Cancer Research, gave an address on *Some aspects of the cancer problem.* There was a clinical demonstration of cases of malignant disease which had remained free from recurrence for seven years or longer after operation. Dr. A. HAWKYARD showed a patient in whom the right half of the tongue, with glands, had been removed by Mr. Lawford Knaggs over 9 years ago. Mr. H. H. GREENWOOD showed a case of duct cancer of the breast, successfully operated upon in 1897; and a second case of scirrhous cancer operated on in 1899. In both

cases Halstead's operation was performed. Dr. A. CHRISTY WILSON showed: (1) A patient who was operated upon by Mr. Pridgin Teale in 1881 for carcinoma of the breast; and (2) a man from whom he had removed a sarcoma of the upper jaw in 1898, the growth being the size of a Tangerine orange, and was small celled. The whole of the left upper jaw, including the orbital plate, left tonsil, pillars of the fauces, etc., was removed. The PRESIDENT gave a demonstration of patients he had operated on for malignant disease during the years 1896 to 1905. The number was 190. These were written to by Mr. Willans, Mr. Littlewood's house-surgeon. Only 69 replies were received. Of these, 23 patients were alive and well; 6 cases lived more than seven years, and died without any recurrence; 23 died within two years from recurrence; and 17 others died from recurrence at longer intervals. Out of 190 cases, therefore, 29 were known to have lived seven years after the operation without any recurrence—that is, about 15 per cent. The cases shown were: Sarcoma of clavicle (1); sarcoma of testis (2); sarcoma of upper jaw (3); sarcoma of breast (1); carcinoma of breast (5); carcinoma of colon (5); carcinoma in other parts (6).

Reviews.

A STUDY OF "PSYCHICAL RESEARCH."

ALTHOUGH Dr. IVOR TUCKETT'S book, which is the subject of this review, is entitled *The Evidence for the Supernatural*,[1] and deals with more topics than that of psychical research, about two-fifths of its contents are devoted to so-called "occultism," including especially what is commonly known as "spiritualism," "telepathy," etc. To this most weighty and interesting part of the work our remarks will be directed. We may say at once that a book of this kind was much needed, and that Dr. Tuckett has supplied the need in a strikingly effective and successful manner. He attacks his chaotic material, including the elusive human subjects who form so large and important a part of it, with singular clearness of method and remarkable freedom from prejudice; and he has well achieved his object "not to give way to any form of bias except that which arises from fear of being misled by inadequate or unreliable data."

That this book supplies a pressing want at the present time is evident from the positive assumptions made by many prominent members of the Psychical Research Society, and others who believe in "Spiritualism," or "Telepathy," that the facts upon which these doctrines purport to be based are undeniably established, however opinions may differ as to their interpretation. It is, moreover, notable that, since the death of Huxley, whose teaching and writings so powerfully led the minds of men in the way of sound thinking, there has been no great public exponent of scientific method on whom this prophet's mantle has fallen. It is a fashion to contrast the scientific spirit of the nineteenth with the philosophy of the twentieth century; and many seem to follow wandering fires in several departments of thought.

In this matter of "Psychical Research," which is not seldom confused in the public mind with "Psychology," there is to be observed an increasing tendency to appeal to the authority of men versed in certain branches of scientific knowledge in support both of the alleged facts of "spiritualism" and "telepathy," and of hypotheses put forward to explain them. For example, Sir Oliver Lodge, who, since the death of the best-known founders of the Psychical Research Society, is to be regarded as one of the chief supporters of modern "Occultism" in this country, believes, in common with many other persons, that "thought transference" is conclusively proved. So also does Sir W. F. Barrett, as is shown in his recent book on *Psychical Research*.

Following such leaders are many people who are desirous of some kind of confirmation of their own beliefs, and therefore confide gladly in the expressed convictions of men who hold prominent positions in the scientific world. Yet we learn now for the first time from Dr. Tuckett that the gentleman who last year announced more than once in the *Times* an offer of £1,000 to any one giving satisfactory proofs of "thought transference" had addressed this offer to three of the "leading authorities on telepathy" for satisfactory proof of even one recent case. On p. 306 of Dr. Tuckett's book are given the three replies, quoted from a statement by the gentleman who received them. The first was from "one of our leading scientists who has often declared his belief in telepathy." It expressed his surprise at any one "imagining that incontrovertible evidence could be obtained at all in an inductive problem." Now, should, perchance, Sir Oliver Lodge or any other prominent believer in "thought transference" be the author of this reply, how greatly different his esoteric doctrine must be from the exoteric pronouncements which render these leaders such valuable authorities to the mass of believers in "occultism" in general!

It is worthy of note in this context that a critical and highly interesting leading article on "Thought Transference," occasioned by the above mentioned challenge, appeared in the *Times* on August 25th last year, but failed to elicit any correspondence from those who publicly assert that "thought transference" is an established fact.

The main evidence which is relied on for the proof of "thought transference" or of "spiritualism" in its modern garb, is contained (*a*) in the Reports of the Psychical Research Society, in which the now notorious Smith-Blackburne experiments, and, much later, experiments with Smith alone as hypnotist, figure very largely; (*b*) in the book entitled *Phantasms of the Living*, by the late F. W. Myers, E. Gurney, and F. Podmore, and in other papers published by the Society for Psychical Research; and (*c*) on still more recent experiments, among which the records of various persons alleged to possess the power of automatic writing are regarded as of prime importance, ranking as high or even higher as trustworthy evidence of the "occult" than the so-called "trance" records of the famous Mrs. Piper. It is chiefly this multiform material to which Dr. Tuckett directs his eminently fair and able criticisms. We believe that, with the exception of Professor Newcomb's article in the *Nineteenth Century and After* for January, 1909, which was occasioned by the republication in book form of certain articles that had previously appeared in the *Westminster Gazette*, no serious or detailed consideration of the allegations of the Psychical Research Society or of any kindred statements, has been attempted for many years, with the exception of some occasional newspaper correspondence. For reasons of space we cannot attempt to give a consecutive summary of Dr. Tuckett's arguments. This book must be read almost in its entirety, including the valuable appendices, in order that the reader may fully appreciate the points established by the author. But a few of these may be referred to as illuminative.

On p. 396 Mr. F. Podmore, writing in 1902, twenty years after the origin of the Society of Psychical Research, of which he was a founder, is quoted as saying with regard to "thought transference": "Possibly, apart from two recent items—namely, the telepathic experiments at Brighton conducted by Professor and Mrs. Sidgwick and the results of Mrs. Piper's trance-utterances—the question of the reality of such a faculty would hardly seem worth discussion." But on p. 127, and in Appendices J, R, and Q, Dr. Tuckett shows of how little scientific value the telepathic experiments were, and in Appendix Q he has completely undermined the "occult" hypothesis of Mrs. Piper's powers.

Again, by drawing attention to certain criticisms of the book entitled *Phantasms of the Living*, which were published by Mr. Taylor-Innes in the *Nineteenth Century* (vol. xxii, p. 189, and vol. xxx, p. 764), Dr. Tuckett has, it seems to us, deprived of any possible weight the reply of Sir Oliver Lodge, in the *Nineteenth Century* for February, 1909, to Professor Newcomb's article on "Modern Occultism" to which reference has been made above.

The absence of bias which marks this work is brought out prominently by contrasting it with the recent book by Sir W. F. Barrett on *Psychical Research*, in which no mention is made of the critical work and writings of Mr. F. Podmore, who was well known as one of the most prominent members and founders of the Society for Psychical Research. And in connexion with this

[1] *The Evidence for the Supernatural: A Critical Study made with "Uncommon Sense."* By Ivor Ll. Tuckett, M.A., M.D.Cantab. Formerly Fellow of Trinity College, Cambridge, and Senior Demonstrator of Physiology in Cambridge University. London: Kegan Paul, Trench, Trübner, and Co., Limited. 1911. (Med. 8vo, pp. 399; 7s. 6d. net.)

question of bias, and the tendency on the part of believers in the occult to shelve unwelcome evidence, we would draw attention to pp. 354–5 of the book under review, where two quotations from the writings of the late F. W. Myers give evidence of the spirit which marked that writer's attitude towards the subject, and also that of the Society of Psychical Research itself at the outset. In the one Myers says that when, disillusioned with orthodox Christianity, he found hope for his longing for immortality in the phenomena of Spiritualism, he resolved to spend all life's energies in beating against the walls of the prison-house in case a panel anywhere might yield. In the other, Myers states that the Society of Psychical Research was founded with the establishment of thought transference as its primary aim. This clearly shows a motive other than scientific in the minds of at least some of the founders of the Society of Psychical Research. In this context we would refer especially to an account communicated to the *Westminster Gazette* for January 29th, 1908, by Sir James Crichton-Browne, F.R.S., of a meeting of the Society of Psychical Research in its early days, at which he had been invited to be present as an independent critic. After the *séance* was over, the critic expressed his belief that the phenomena observed were the result of trickery, basing his opinion partly on direct observation and partly on the cessation of the phenomena after adequate tests had been applied. "Then," says Sir James Crichton-Browne, "I vividly recollect Mr. Myers standing in front of the fire and saying, 'It must be allowed that the demonstration has been a failure, and I attribute that to the offensive incredulity of Dr. Crichton-Browne.'"

The real kernel of interest in the subject matter of this book, especially to medical men and to others who approach it in a scientific spirit, consists in the psychological characteristics of the women and men who are the agents of the "phenomena" produced, as well as of those who believe in the genuineness of such phenomena, and propagate the doctrines of spiritualism or telepathy. It is not "thought transference" so much as the persons to whom "entrancement" and "automatism" are attributed, and those who believe in their powers, who are the proper study of scientific men. Paid "mediums" of all kinds, who have been so frequently exposed in actual fraud, and are confessedly detectible in proportion to the stringency of allowed tests, may be neglected altogether. Of those who take no material reward, some undoubtedly deceive for the sake of personal notoriety, a motive far greater and more widely spread than most non-medical persons not directly conversant with "spiritualistic" inquiries would readily admit. But, on the other hand, it is fair to remember that some people are deeply convinced of the existence of occult powers or influences in manifestations of this kind, and in their earnest longing to explain this belief, and to enforce it upon others, do a little evil in order that greater good may come. These, perhaps, should not be harshly judged. The contrast between them and the single-minded and detached truth-seeker illustrates the eternal antagonism between the scientific mind and the mind to which only burning desire and vivid imaginings give ground for firm belief. But we would here say, in passing, that it is hard to conceive that any "spiritual" communication which, up to date, has been alleged to occur through the agency of "trance mediums" or "automatic writers," could possibly either confirm, disturb, or destroy the faith of any genuine believer in Christianity or some other religions.

It seems desirable to combat the methods and conclusions of the advocates of telepathy and spiritualism, both in the cause of scientific truth *per se* and on account of the intellectual, moral, and material harm which may and does result from these particular beliefs. It is not necessary, nor will space allow us, to dilate upon the second of these reasons, especially to medical readers. But the first, perhaps, requires some explication. Much loose thinking about the evidence for these phenomena seems to prevail among some persons who have much knowledge of certain branches of science, and confidently appeal to scientific method in support of their plea for the further extension of "psychical research." Thus, in a book entitled *The Recent Development of Psychical Research*, by Mr. W. C. D. Whetham, F.R.S., the author, after giving an excellent description of the various steps of the process by which "Laws of Nature" are established and from time to time modified by new knowledge, goes on to say that "nothing must be ruled out of court because contrary to received views. Where a *primâ facie* case has been made out everything must be examined" (by the methods already described). But he then proceeds to give, among some illustrations of the possible results of such investigations, the question of "*direct thought transference* as one which seems to be coming within the range of scientific inquiry," and states that "it is possible that an advance has already been made towards clearing away part of the mystery that surrounds these phenomena" (*sic*). This illustration may deceive the unwary, for the writer apparently ignores the fact that most scientific men who have paid any attention to this subject deny that any *primâ facie* case has been made out for the search for any cause, at present unknown, in explanation of these so-called "phenomena."

Again, in the admirable and scientific work by M. Solomon Reinach, entitled *Orpheus, or a General History of Religions*, there is a reference to "telepathy, etc." which may be quoted here. After dealing with the subject critically and concluding that so-called "mediums" are charlatans who have recourse to subtle methods of fraud, he proceeds to say that "the facts of telepathy are not yet scientifically established, but that, after all, *they do not seem any more extraordinary than the experiments of wireless telegraphy*"! The *ignoratio elenchi* displayed in the first of these quotations, and the failure shown in the second to perceive that the facts of wireless telegraphy are not *in pari materiâ* or comparable with the alleged facts of telepathy, are sufficient to point the statement that there is among certain men of science much confusion of thought regarding the subject under discussion.

Touching the pitfalls incidental to "psychical research" and the qualifications necessary to those who undertake such inquiries with the sole object to see "whether these things are so," Dr. Tuckett insists on a thorough training and practice in the use of scientific method; some knowledge of conjuring and sleight of hand, experience in modern experimental psychology, etc. But he seems to lay hardly sufficient stress on the necessity for a keen eye for deception, even in quarters and circumstances where it may be least expected; and above all, on a practical knowledge of the vagaries of human conduct. Such qualifications as these last are to be found at their highest in medical men who are imbued with the scientific spirit. Among the several men of undoubted eminence in various branches of scientific work who have been known, and are constantly quoted, as believers in so-called "occult" phenomena, it is to be remarked with emphasis that biologists, physiologists, and medical psychologists are far to seek; while physicists and mathematicians are not rare. Entry into the life-school gives the key to unlock many cabinets in the human mind, and thus supplies important aids to the due assessment of the value of human evidence.

We cordially recommend the careful study of Dr. Tuckett's book to all who, from any point of view, may be interested in this subject. The appearance of the work is especially welcome now, in view of the recent publication of the above-mentioned book by Sir W. F. Barrett, Professor of Experimental Physics in the College of Science for Ireland. This book, in its wholesale championship of so-called "psychical research," is practically, with all its numberless assumptions, a negative assault on scientific method generally.

SURGERY OF THE THORAX.

THE surgery of the thorax does not appear to have kept pace with the surgery of other regions. This observation will be readily borne out by those to whom the efficient surgical treatment of chronic empyema wounds of lung, pulmonary abscess, and bronchiectasis has been for long a depressing business. The extremely limited application of surgical methods to pulmonary tuberculosis in comparison with the great advances in surgical treatment, both conservative and operative, of tuberculosis in other situations must be regarded as in some degree an aspersion on our vaunted progress. Exploratory laparotomy is now undertaken with as much lightheartedness as a conscientious surgeon can undertake any operation. But exploratory thoracotomy—and by that is meant opening the chest cavity so as to admit the whole hand if need be—is undertaken still, if ever, with considerable

diffidence and some apprehension. Professor SAUERBRUCH and his assistant Dr. SCHUMACHER, in their work on the *Technik der Thoraxchirurgie*,[2] maintain that the whole outlook on this branch of surgery is altered by the introduction of apparatus obviating the risks of artificially produced pneumothorax. Their book is the outcome of eight years' personal observation and work in thoracic surgery. It is divided, naturally, into two parts, general and special. In the former, such general matters as the preparation of the patient, his position on the operation table, the general operative technique, and, most important of all, the question of intrathoracic pressure—negative and positive—are discussed. Apparatus designed to obviate the risks of pneumothorax are of two kinds—positive pressure apparatus and negative pressure apparatus. Three varieties of positive pressure apparatus are described in this book—those invented by Engelken, Brauer, and Tiegel respectively. The collapse of the lung which follows the opening of the pleural cavity and the admission into it of atmospheric air, with its accompanying dangers of "flapping" of the mediastinum, displacement of heart and great vessels, and impeded movement of the sound lung, is prevented by forcing air at pressure higher than that of the atmosphere into the air passages. Brauer's apparatus envelopes the head and neck of the patient and the hands of the anaesthetist in an air-tight chamber, into which air is pumped at pressure higher than that of the atmosphere. Tiegel's apparatus fits closely over the mouth of the patient, and it has various tubes attached to the electrically driven pump. Professor Sauerbruch has objections to these forms of apparatus, and prefers negative pressure apparatus. This consists of a chamber, the air pressure in which is kept lower than atmospheric pressure by means of a suction pump. Within it are the operator, his assistant, and all of the patient except his head. The collapsed lung is forced outwards against the thorax wall owing to the negative pressure within the chamber, combined by the atmospheric pressure from without through the natural air passages. All these apparatus are fully illustrated and described in the text.

It will be seen, therefore, that elimination of the paramount danger of pneumothorax by such apparatus as Sauerbruch's negative pressure chamber permits many hitherto inoperable conditions to be brought within the scope of surgery. The author points out the danger of "tension-pneumothorax" where the air cannot escape into the subcutaneous cellular tissue, but more is being pumped into the pleural cavity from a wound of the lung or of a bronchus, and says that in all such cases thoracotomy by intercostal incision without removal of rib and suture of the wound in the lung is indicated. Similarly tumours of ribs and breast can be radically dealt with even at the expense of large portions of the chest wall. Transpleural laparotomy is the type of operation rendered very much safer by the employment of the negative pressure apparatus. During last winter the author had two cases of injury successfully dealt with by this route: in one a revolver bullet wound of the liver was reached through the diaphragm, in the other ruptured lung was sutured, and then a ruptured spleen removed through the diaphragm.

Excellent, if not elaborately detailed, descriptions of other operations are given. Freund's operation of removal of a small portion of the cartilage of the first rib in certain cases of apical tuberculosis, and the same surgeon's operation of chondrotomy with insertion of a fasciculus of the pectoralis major between the cut portions of the cartilage for emphysema with rigid chest are described. The methods of exposure of the heart for wounds, and the operation for transpleural and perdiaphragmatic removal of the cardiac end of the stomach are described. The description of Trendelenburg's operation for pulmonary embolism is in that author's own words.

The illustrations are by Dr. Schumacher, and are, it is naïvely suggested, the more valuable from the fact that they were mostly drawn immediately after the operation was over. They are more than helpful—they are an integral part of the book.

It will be seen, therefore, that this is a good book, well and clearly written (the German, we are glad to be able to say, is comparatively easy), by one who is a pioneer in this region of surgery. The ripe personal experiences of such a distinguished surgeon as Professor Sauerbruch will be gladly welcomed by English readers.

[2] *Technik der Thoraxchirurgie.* Von Dr. F. Sauerbruch, O.O. Professor, Direktor der Chirurg., Universitäts Klinik, Zurich, und Dr. E. D. Schumacher, Privat-dozent, I Assistent an der Chirurg., Universitäts Klinik, Zurich. Berlin: Julius Springer. 1911. (Med. 4to, pp. 105, mit 55 textfiguren und 18 mehrfarbigen Tafeln. M.24.)

DISEASES OF THE STOMACH.

THE handbook on the surgical significance of stomach radiology, written by Dr. PAUL CLAIRMONT and Dr. MARTIN HAUDEK,[3] gives an interesting account of 35 cases of stomach disease examined by *x* rays, the notes being illustrated in many cases by figures. The authors claim that if the employment of radiology in the examination of the stomach were more systematic and regular there would be fewer failures, fewer exploratory operations, and fewer operations performed too late to be of service. No pathological change was found in the stomach in any of the cases where, in spite of a negative radiological result, an operation was undertaken on clinical grounds. In many cases in which the old methods had given grounds for suspicion, radiology indicated precisely the seat, nature, and extent of the lesion, and thereby greatly contributed to the success of the operation. In several cases a useless operation was prevented by the demonstration of inoperable cancer, while in others where an exploratory incision would have been made the operation became a laparotomy based on definite indications. In only one case out of the whole series was the condition misinterpreted; in this the appearances rendered the existence of a pyloric ulcer probable, but the operation showed only thickening, for which a gastro-enterostomy was performed. In no single case did a radiological diagnosis of cancer prove to be unfounded. If no definite opinion could be expressed at the first examination, its repetition a few weeks afterwards permitted a decisive opinion to be given. The fear that valuable time may be lost by this method of examination has not been supported by their experience. So far as the early diagnosis of callous ulcer is concerned there are distinct advantages in radiology, as by it this obstinate lesion may be demonstrated before it has given rise to extensive changes. On the other hand, they can point to no instance in which it can be said that it has helped in the early diagnosis of carcinoma, although in no instance was cancer overlooked. This, they think, was probably due to the fact that the cases were not submitted for examination when the patient first began to complain of pain, and recommend that in all cases where the presence of pain and the age of the patient suggest the possibility of cancer, radiology should be tried without waiting for other clinical symptoms. They submit that the method is only in its infancy, and that much may be hoped from its further development. The authors may be congratulated upon their book, which should be read by all interested in stomach surgery.

The book entitled, *Diseases of the Stomach and Upper Alimentary Tract*, hardly fulfils the aim of its author, Dr. ANTHONY BASSLER,[4] which was to supply a "handy work for the busy general practitioner of medicine," as it weighs about 5 lb. and contains over 800 pages. About half of his space, however, is devoted to non-clinical matter, set out at great length, about 200 pages being devoted to methods of examination. It would be more practically useful if authors would tell their readers what methods they personally practise instead of taking up so much space by details of methods, many of which are untried or unnecessary. The author seems well acquainted with recent German literature, upon which his book is based. It shows throughout want of care in proof reading, as there are many ugly mistakes, "gastrides," "dilation," "Dietel" for Dietl; a pleximeter is described as if it were a hammer (p. 99); "mammeloné," "melancholily," "enderoptosie," "Curchinaun" for Curchmann; honorary does not mean honourable (p. 658). On pp. 695–6 there are a number of prescriptions which are curiously written, many of the drugs are not put in the genitive, and we have such forms as "liquor ferri albuminata," "zincum valerianata," "tinctura valerianata." The book is illustrated by some

[3] *Die Bedeutung der Magenradiologie für die Chirurgie.* Von Privat-dozent Dr. Paul Clairmont und Dr. Martin Haudek. Jena: Gustav Fischer. 1911. (Roy. 8vo, pp. 96; Abbl. 8. M.2.80.)

[4] *Diseases of the Stomach and Upper Alimentary Tract.* By Anthony Bassler, M.D. Philadelphia: F. A. Davis Co. London: Stanley Phillips. 1910. (Roy. 8vo, pp. 854; figs. 108. 25s. net.)

very excellent photographs of pathological specimens, but there are a great many useless figures of various appliances.

INTERNAL MEDICINE AND ORTHOPAEDICS.

IN the preface to his book which he and his assistant, Dr. SAXL, have written,[5] Dr. LORENZ brings forward cogent reasons why physicians should know more than they do of the uses and resources of orthopaedic surgery. The instances which he quotes are striking enough, particularly one of a tabetic who told his physician that he found himself much more comfortable when he kept his hands in the cross-pockets of his riding breeches. As the patient found no relief from putting his hands in the side pockets of his trousers, his relief was attributed to auto-suggestion. The rapid development of an arthropathy of the vetrebral column, however, explained the relief afforded by the support given by the first-mentioned attitude. Dr. Lorenz justly urges that an orthopaedist accustomed to treat spondylitis would have recognized the condition and much earlier treatment would have been given, to the advantage of the patient.

The work is divided into sections on diseases of the respiratory, circulatory, digestive, urinary, and nervous systems, and of the organs of movement. All are adequately dealt with. The effects of the deformities of the spine upon the functions of the lungs are well shown. In this connexion the consequences of ankylosis of the sterno-clavicular articulation of the first rib with shortening of the cartilage are worthy of note. It is claimed that the consequent stenosis of the upper opening of the thorax causes or favours the development of phthisis, and for this condition operations have been performed by Freund and others. Spinal curvature following empyema and its treatment is well described. It is remarkable how little the heart may be affected by the interference of even the severest grade of scoliosis. A case is recorded of such a kind, in which at the age of 86 no ill effects on the heart could be found.

It is in the treatment of diseases of the nervous system that orthopaedics and internal medicine touch one another most. In many kinds of palsy orthopaedic appliances are helpful, and it is to be regretted that very many medical men appear to be unaware of this undoubted fact. Although some of the most distinguished physicians in this country discourage the use of instruments in cases of anterior poliomyelitis, it is a fact that by the discriminating prescription of these aids not a few adults and adolescents have regained their long-lost powers of locomotion. Even in incurable and progressive nervous disease the onset of helplessness may often be much deferred by the use of appliances. Professor Lorenz and Dr. Saxl by no means confine themselves to instrumental therapeutics. The latest operative measures are described or mentioned in this book, and the advice given is generally prudent and sound. We would, however, put in a word of caution against the expectation of great results from tendon and muscle transplantation. The book is suggestive, and likely to be of considerable use to those who read German.

PHYSICAL THERAPEUTICS.

THE formulary of physical therapeutic agents,[6] by Drs. LARAT, DURAND-FARDEL, DAGRON, and DUBOIS, is a useful little book which explains the application of electricity, mineral waters, light (including sunlight and the Finsen light), massage, and gymnastics, and, in an alphabetical index of diseases, describes the application of these different agents. It is noteworthy that the mineral waters of French stations only are described, while the authors omit to mention the useful means which are now so largely employed for producing stasis and for the local application of hot air devised by Professor Bier. The chapter on electricity is brief, but includes *x* rays and radium. The book is prefaced by a eulogistic introduction by the late Professor G. DIEULAFOY.

We are not sure that we can give an adequate account of Dr. B. BARCZEWSKI's handbook and textbook of "my reflex massage,"[7] which he claims to be "a new practical method for the diagnosis, treatment, and prophylaxis of diseases." He says that he learnt his method by experience in his own person. After a fall on his arm he suffered from pain in his shoulder, which increased and prevented sleep, and was rather made worse than better by a hot bath and ordinary massage. He therefore stopped massage, but still could not sleep; this led him to go over his shoulder with his fingers in order to see what was the matter, and in thus searching for the affected part he discovered that the greatest pain was over the acromio-clavicular joint, and on making pressure at this point the pain lessened; when the pressure was relaxed the pain was relieved and he got some sleep. He repeated this operation several times during the night and the following days, and applied his discovery to other patients, of whom he had a good many, as he had to some extent specialized in the treatment of accidents. He claims to have treated successfully in this manner a number of cases, chiefly neuralgias, gouty rheumatic troubles, and various functional conditions, and so far as we understand his theory he believes that the seat of pain points to a deposit of which his procedure causes the absorption. He attaches little importance, however, to his explanation, and is ready to accept any plausible theory, but he has no doubt of the facts, and offers to demonstrate his results at any medical meeting. His method, he says, differs from ordinary massage in being applicable to a much wider range of disease, and also by possessing incomparably greater curative effect in a much shorter time. He has used it largely, not only in dealing with accidents, but in his practice at Wiesbaden, where he says he has gradually developed a speciality with constantly increasing results for the treatment of the most varied conditions, especially chronic cases which had undergone, without benefit, all possible treatment. He gives a number of cases, but we can only refer our readers to the book itself if they wish to know more about Dr. Barczewski's system.

[5] *Die Orthopädie in der Inneren Medizin.* Von Regierungsrat Professor Dr. A. Lorenz, vorstand des K.K. Universitätsambulatoriums für orthopaedische Chirurgie in Wien, und Dr. Alfred Saxl (Assistent am K.K. Universitätsambulatorium für orthopädische Chirurgie in Wien. Supplemente zu H. Nothnagel, spezielle Pathologie und Therapie. Herausgegeben von Professor Dr. L. von Frankl-Hochwart. Wien und Leipzig: Alfred Hölder. 1911. (Double sup. roy. 16mo, pp. 156.)

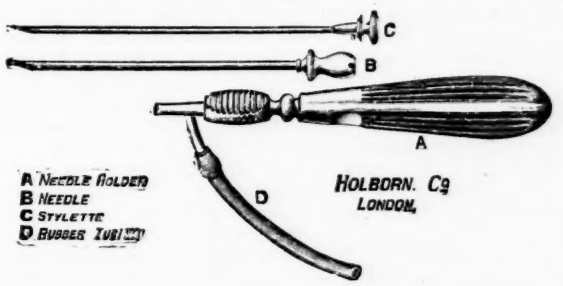
[6] *Formulaire des agents physiques.* Par J. Larat, Ray, Durand-Fardel, G. Dagron, Dubois. Préface de G. Dieulafoy. Paris: Octave Doin et fils. 1912. (Cr. 8vo, pp. 460 12 figs. Fr.6.)

[7] *Hand und Lehrbuch meiner Reflexmassage.* Von Dr. B. Barczewski. Berlin-Schoeneberg: J. Goldschmidt. 1911. (Roy. 8vo, pp. 154; Tabelles v. M.3.50.)

MEDICAL AND SURGICAL APPLIANCES.

Lumbar Puncture.

THE annexed illustration depicts an apparatus devised by Mr. H. WANSEY BAYLY, Clinical Pathologist to the Royal National Hospital for the Paralysed and Epileptic, in order to secure greater control of the work of performing lumbar puncture than is possible when a syringe is used. In respect of it he writes: My apparatus can be plunged straight away into boiling water and taken out of the

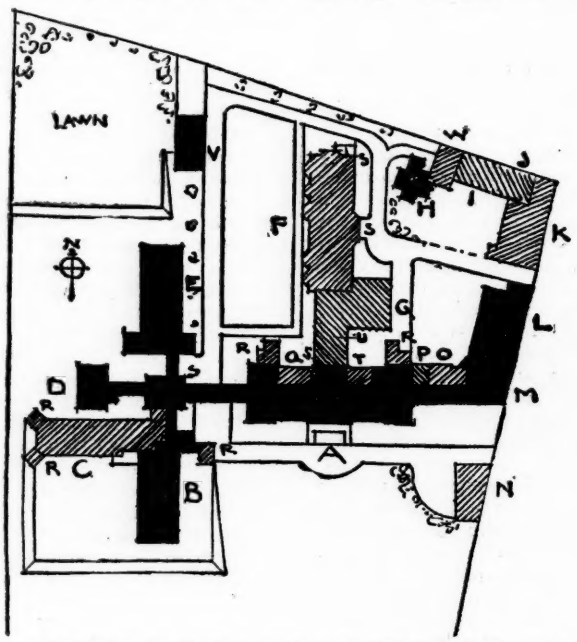


boiling water without any fear of injury. The cerebro-spinal fluid is conducted through the rubber tube into a sterile test tube, and thus there is no fear of contamination. If, after the puncture has been made, the fluid does not flow into the test tube, the holder is removed and the stilette passed down the needle. I find, however, that it is only very occasionally that the stilette has to be used. The apparatus was made for me by the Holborn Surgical Instrument Company.

CUMBERLAND INFIRMARY.

IN the JOURNAL of November 4th, 1911, we gave a report of the ceremony at the opening of the King Edward VII Memorial Wing, and as this marks the completion of the scheme of reconstruction and enlargement which has been in progress during the last three or four years, it will probably be of interest to show what has actually been accomplished The need of this great work being undertaken has long been pressed on the governors both by the committee and the medical staff, and probably the greatest factor in securing the success of the scheme is the fact that the scheme finally adopted obtained the unanimous approval of all the three above-named bodies interested in the welfare of the institution.

The Infirmary is situated on high ground on the west side of the city, and is surrounded by a park of seven acres. The original building is on the corridor principle, and was opened in 1841 with 40 beds. The total cost (including the price of the site) was £8,350, and its first physician, Dr. Thomas Barnes, one of the earliest members of the British Medical Association, was mainly instrumental in raising this sum. In 1873 the number of beds was increased to 100, and a new out-patient department was erected, the total cost of these improvements being £13,800. In 1894 a nurses' wing was added above the out-patient department, and accommodation provided for 22 nurses. In 1899 a new operating theatre was erected. For some time past it has been felt that an extension was urgently needed, the number of patients frequently exceeding the bed accommodation, and in 1907 a scheme was formulated. It is interesting to note that the moving spirit in originating and carrying out this scheme has been Dr. Henry Barnes, a nephew of the founder. The scheme as carried out has provided a new wing containing a new male surgical ward with 12 beds on the ground floor, and a children's ward with 24 cots on the first floor. The wing has, with the sanction of His Majesty King George V, been named "The King Edward VII Memorial Wing," and a large part of its cost has been provided out of the Cumberland King Edward VII Memorial Fund. A new nurses' home has also been provided, with accommodation for 40 nurses. A new kitchen block has been built; new *x*-ray and ophthalmic departments have been added; a steam laundry has been erected; a centralization of the heating and hot-water services has been effected, one boiler now sufficing to do the work previously done by eight small boilers scattered about in different parts of the building. Better accommodation has been secured for the domestic servants by their transference from the basement (which they previously occupied) to the quarters built for the nurses in 1894, and various other improvements have been made which add greatly to the efficiency of the institution. In the accompanying block plan all the parts that are black were in existence before the present extension scheme was adopted, and the new portions are shaded.



A, Administrative block; B, ward; C, King Edward VII Memorial Wing; D, operating theatre; E, ward; F, nurses' home; G, kitchen, etc.; H, mortuary; I, boiler-house; J, pump-room; K, laundry; L, out-patient department; M, porter's lodge; N, motor house; O, ophthalmic room; P, *x* rays; Q, chapel; R, sanitary towers; S, staircases; T, clinical room; U, servants' ha ; V, garden house, etc.; W, disinfector.

The King Edward VII Memorial Wing faces south, and has two wards 56 × 25 ft., with sanitary towers and a balcony on each floor at the west end; at the east end there is another balcony on each floor, and a ward kitchen and a sister's room also. The wards are of fire-proof construction, with teak block floors with tile margin along the walls. They are heated by steam-heated radiators and Shorland's ventilating ward stoves. There are four upcast ventilating shafts in each ward. The walls are tiled for 4 ft. 6 in. high, and, in addition, in the children's ward there is a picture frieze representing nursery rhymes, the rhymes selected being "Sing a song of sixpence," "Jack and Jill," "Little Jack Horner," "Mary, Mary, quite contrary," "Where are you going, my pretty maid?" "Little Bo-peep," Old Mother Hubbard," and "Little Boy Blue." The pictures are duplicated, but each repetition has been kept as far apart as possible. They have been designed and executed by Doulton and Co., and were a special gift from an influential governor of the Infirmary. There is an inscription on a stone panel at the west end of the children's ward as follows:

KING EDWARD VII
MEMORIAL WING
1901–1910.

At the entrance of each ward there is a small wooden panel with the words upon them in raised gilt letters "King Edward VII Memorial Wing."

The kitchen block consists of kitchen 35 × 24 ft., with scullery, servery, larders, pantries, and store-rooms. The servants' hall is 25 × 18 ft.

The nurses' home has on the ground floor a dining room and a sitting room, each 35 × 31 ft., with teak block floors, and the dining room walls are panelled with yellow pine. On the same floor are a library, a lecture room, and a linen room. On the first and second floors bedroom accommodation is provided for 40 nurses, with bathrooms and lavatories on each floor. Each bedroom is 12 ft. 3 in. × 8 ft. 6 in. They have solid pitch pine polished floors on fire-proof flooring. Above the entrance of the principal doorway the following inscription has been placed:

NURSES' HOME: NAMED: BARNES WING
IN RECOGNITION OF THE SERVICES RENDERED BY
HENRY BARNES, ESQ., M.D., LL.D.,
IN THE ENLARGEMENT OF THE INFIRMARY.

The home is connected with the main building by a winter garden 62 × 25 ft., which is situated above the servants' hall and kitchen offices. It is used for patients' entertainments, exhibitions of the linen league, and other functions.

The laundry block has disinfecting chambers, boiler-house and pump room for all heating and hot-water services, a wash-house and ironing room, with drying chambers, receiving and dispatch rooms, and a separate staff wash-house.

The ophthalmic and *x*-ray rooms adjoin the main building, and existing rooms in this part of the hospital have been converted into a chapel and a clinical room. A terrace and tennis-lawn have been made out of surplus soil from the foundations.

The scheme originally contemplated considerable alterations and extensions of the out-patient department, but in view of the probable effect of the National Insurance Bill on this class of patients it has been decided to postpone the carrying out of this part of the scheme until it is seen what the effect is likely to be. The estimated cost of the entire scheme was £30,000. and towards this the total amount received or promised up to date is £29,850. The architect is Mr. J. J. Burnet, LL.D., A.R.S.E., architect to the Western Infirmary, Glasgow.

Nova et Vetera.

A "SURGEON VENTURER."

DOCTORS, as is well known, played a large part in the extension of our Indian Empire; in the good old days of John Company they not infrequently had, and took advantage of, what Dr. Johnson called "potentialities of growing rich beyond the dreams of avarice." The careers of not a few medical men in the colonies have in them all the elements of the most thrilling romance. One of these finds a chronicler in General Sir Henry Brackenbury, who, in the January number of *Blackwood's Magazine*, gives a very interesting account of a "Surgeon Venturer" of the last century. The narrative is founded on a book entitled *Journals and Reminiscences of James Douglas, M.D.*, edited by and privately printed for Douglas's son in New York in 1910.

James Douglas was born at Brechin in Forfarshire in 1800. He was the son of a Wesleyan minister and received his early education at the Academy of Dumfries and other schools. At the age of 13 he was apprenticed to Dr. Thomas Law, one of the Ellenborough family and the leading medical man in the Lake District. General Brackenbury gives an extract from the indenture of apprenticeship, which he considers an extraordinary document. It contains only the provisions usual in such documents, though of course it seems incongruous that a boy of 13 should be made to contract not to play cards, dice, or any unlawful game, fornication commit, nor matrimony contract, etc. But as the period of apprenticeship was for five years, the contract was not so very onerous after all. As perquisites the boy had the shilling which was the fee for blood-letting or tooth-drawing. The blood-letting was very profitable, as it was the custom of the people generally to be bled every spring, and many of them were also bled in autumn. We may here mention by the way that this custom continued long after. Sir James Paget tells us of his sanguinary experiences on market days when he was an apprentice at Yarmouth. Writing in his seventy-ninth year, Douglas upholds the system of training as calculated to turn out more efficient and practical men than the modern system of learning from lectures and books. But when one thinks of a lad of 14 making up prescriptions, one cannot help recalling the chemist's assistant in *Pickwick*, whom his master described as "a nice boy; but the prevailing impression on his mind is that Epsom salts mean oxalic acid and syrup of senna laudanum." At the close of his five years' apprenticeship Douglas went to Edinburgh to prosecute his studies, but in his first session he took an appointment as surgeon to a whaler for a voyage to the Arctic regions. Here, again, Sir Henry Brackenbury seems to be surprised that an unqualified lad should have charge of a ship's crew about to engage in one of the most dangerous occupations known to seamen. But for long afterwards this was quite common. The students in Scotland found it a convenient, though possibly dangerous, way of earning money to complete their studies, and at the same time seeing surgical practice. In addition to his medical duties young Douglas performed the functions of a chaplain. His ship, the *Trafalgar*, of Hull, penetrated the Arctic circle to 81° N., a point nearer to the North Pole than any ship had reached before that date, except those under Sir John Ross. He kept a journal, which is full of adventures with whales, polar bears, unicorns, and ice. On his return he finished his curriculum at Edinburgh, where one of his teachers was Robert Liston, and some weeks before his 20th birthday he obtained the licence of the Royal College of Surgeons of Edinburgh. After a short period of further study in London, where he attended the lectures of Astley Cooper and Abernethy, he was admitted a Member of the English College of Surgeons. He then sailed as surgeon in the *Theodosia*, a trader owned by Mr. Gladstone of Liverpool, father of the statesman. He went to India, where he hoped to get a permanent appointment in the East India Company's service.

In 1822 he returned to England to receive an appointment as Assistant Surgeon in the Bengal Presidency, but he never went back to India. While in London waiting for a vessel to take him to Calcutta he filled up his spare time by attending the lectures and practice of Astley Cooper. One day he saw on the notice board an open letter addressed to Cooper by the Secretary of the Government of Poyais asking him to recommend a well-qualified surgeon to accompany a party of settlers to the Mosquito Shore. The Mosquito Shore was taken possession of about the middle of the eighteenth century by an agent of the Governor of Jamaica, of which colony it was then a dependency, and some kind of settlement was formed there. One of the Indians was invested King of the Mosquitos under the protection of England. An adventurer called Gregor M'Gregor had ingratiated himself with this comic-opera king and obtained from him a grant of 76,000 square miles to which the king had no real title. M'Gregor assumed the style of Cazique of Poyais, and undertook to colonize the territory. He went to England in 1821 with the ostensible object of securing colonists and the means of developing the resources of the territory. In London he became acquainted with a man called Thomas Strangeway, whom he appointed his "aide-de-camp." Strangeway wrote a sketch of the Mosquito Shore, which was a compilation of the most glowing descriptions of the agricultural possibilities of the West Indies transferred to the swamps of Honduras. Strangeway's misrepresentations were exposed; nevertheless, M'Gregor managed to obtain £16,000 for the right to colonize swamps to which his own title was of the most shadowy kind, and a company was floated. On Douglas presenting himself at the office of the company he found three or four substantial-looking gentlemen who called themselves directors. They induced him to give up his appointment in India, and he sailed for the supposed colony in November.

The party consisted of a commandant, a secretary, and a commissary, who took with them twenty-seven young men in the forecabin and in the steerage forty-six men and women, and a few children. In February, 1823, they reached the Mosquite Shore, where they met with a hostile reception from the natives. After a time the party succeeded in landing, but instead of finding "a remarkably healthy climate, agreeing admirably with the constitution of Europeans," an "extremely rich and fertile soil," a "country beautifully varied by hill and valley with fine savannahs and plains," and "ready and profitable markets," together with "many very rich goldmines," they found a very different state of things. The resemblance to Eden described in *Martin Chuzzlewit* is so strong that Dickens might have taken his description from that of Strangeway, who had ornamented his pamphlet with a frontispiece showing a number of substantial buildings surrounding a church, with a respectable steeple. But, alas! they looked in vain for the church and the houses. The unbroken forest reached down to the water's edge, and their tents having been left on board their ship, they were fain to make fires of driftwood and sleep on the beach. We cannot follow them through their various adventures, in which, as may be imagined, remittent fever played a large part. Exposed as they were, without shelter, to all the fury of storms and tropical rains, with scanty supplies of food and no medicines, sickness raged among them. Douglas himself fell ill, and was soon reduced to a skeleton. In time help came to them, and such settlers as survived were taken home again.

Douglas chose to proceed to America, where he wandered about with some companions till he was stranded at Utica. His health began to improve and he was thinking of returning to New York, when an accident completely changed his career. He was asked by a farmer to visit a man through whose body a pitchfork had passed. Douglas operated successfully, removing a plug of clothes that had been carried into the abdomen, and the patient made a good recovery. This gained for him such a reputation as a surgeon that he built a house, married, and settled down with the intention of spending his life in Utica. In 1824 the Medical College of Auburn asked him to give a course of lectures on anatomy and surgery. The Honorary Degree of Doctor of Medicine was conferred upon him. On his return to Utica he fitted up a private dissecting room and narrowly escaped getting into serious trouble by "snatching" the body of a negro boy. In spite of this, he repeated the offence, but, instead of a friendless lad, he this time, by mistaking the grave, "resurrected" the body of a well-known and highly respected citizen. He fled from Utica and went to Quebec, intending to make his

home there. There again he was brought into notice by a fortunate accident. In 1832 came a visitation of cholera, which entailed on him an amount of work which nearly broke him down.

In 1846 his surgical career was brought to an end by the consequences of a prick in the finger while he was amputating for frostbite. He then devoted himself to the treatment of the insane, who since the conquest of Canada by the British had been exclusively in the hands of nuns. Approached by the Government, Douglas expressed the opinion that the patients would be benefited by the disuse of confinement and other severe methods of treatment, and he undertook to take charge of the lunatics for three years on an understanding that the Government would provide a suitable asylum. Drs. Fremont and Morrin joined him and remained partners till their death. From a report of Douglas in 1849 it appears that "insane persons were confined merely as unmanageable or as dangerous to the community and themselves. No measures were adopted for their restoration to reason. They were shut up in separate cells, were debarred intercourse with the world and with each other, were left to brood over their disordered fancies until they became maniacal, tore their clothes, became filthy in their habits, and, from a well-known law of nature that the faculties become dormant for want of exercise, became imbecile or idiotic. Occasionally a patient was removed by his friends, rarely was one restored to reason." Douglas allowed the patients to associate together, and as soon as their muscular power was sufficiently restored they were encouraged to employ themselves in occupations congenial to their former habits and tastes. The effects of this treatment were soon apparent in improved health and spirits, and in some cases restoration to reason. To this work Douglas gave the rest of his life, till his 66th year, when it was found impossible to continue the contract on the Government allowance, and he was driven to part at a great sacrifice with his interest in the asylum. He continued to live at Quebec till 1875, when he went with his son to the United States. He lived eleven years longer in Phoenixville, Pennsylvania, and in New York. Unsuccessful mining speculations swallowed up whatever money he had accumulated, but the last years of his life were peaceful and happy.

He was a man of massive frame, and of very remarkable gifts. Oliver Wendell Holmes, after once meeting him, said that in his head and figure he was the nearest approach to the ancient Jupiter he had ever seen. His son says: "He had many of the qualities of greatness, for his character possessed the elements out of which either a man of wide professional repute or a statesman of commanding influence might have been compounded, and therefore those who knew him well wondered that he remained obscure. Perhaps he knew himself better than others knew him, and may have suspected that the strong properties of his nature were mingled with others so inconsistent that the resultant was a character too eccentric and full of contradictions to bear the scrutiny of the public eye."

THE Public Health Bulletin (No. 50) of the Treasury Department Public Health and Marine Hospital Service of the United States is devoted to further studies upon leprosy. Currie and Stollmann have continued their studies on rat leprosy. Many attempts were made to cultivate the bacillus of this disease on artificial culture media; both on the media ordinarily employed in the laboratory and by the method of Clegg in symbiosis with amoebae and cholera vibrios, but all failed. In a further series of experiments continued over a year all the results were again entirely negative, not a single culture of the genuine bacillus having been obtained. In one instance an acid-fast streptothrix appeared after an inoculation from an ulcer on the abdomen of a leprous rat, but, as such organisms might easily occur accidentally on an exposed surface, the authors rightly consider it an accidental contamination. In a series of immunity experiments Currie and Clegg were unable to differentiate by the method of Bordet and Gengou the leprosy bacillus from certain other acid-fast micro-organisms. They further found that extracts of certain acid-fast bacilli, other than *B. leprae*, would deflect the complement when combined with leper's serum. They were unable to produce specific agglutinins for *B. leprae* by injecting a horse with the cultivated lepra bacillus.

MOTOR CARS FOR MEDICAL MEN.

MOTORISTS AND ROAD REPAIRS.

AN interesting case recently came before the Swansea County Court in which a Swansea motorist brought a claim against the Glamorganshire County Council for damages caused to his car by the negligence of the council's servants in not properly restoring a portion of the road between Swansea and Mumbles after making an excavation. In view of the importance of the matter to motorists generally, the legal expenses were defrayed by the Automobile Association and Motor Union on the recommendation of the Welsh Automobile Club.

In summing up, the judge apparently attached considerable importance to the fact that the defendants could not call any evidence as to the condition of the road immediately after the accident, and that after the plaintiff had reported the accident to the council, the hole had been properly filled up. Judgement was given for the motorist for the amount of the claim and costs.

The question of the liability of road authorities in carrying out repairs is one of vital importance to motorists. It is the view of the Automobile Association and Motor Union that there is an obligation upon local authorities to execute any repairs with due regard for the convenience and safety of the public, and while this action was principally supported in the general interests of motorists, the decision should be of benefit to all road users.

BOSCH H. T. MAGNETO.

In the course of a reply to an inquiry about the Ford Car published some time ago, Dr. E. J. Chambers (Doncaster) wrote stating that he had at first found the car very liable to ignition trouble and plug sooting and oiling. He had a Bosch H. T. magneto fitted over three months ago, and finds that it has improved the running of the car very much; the plugs keep cleaner, there is a good pull at low speed on top gear, and no misfiring. He adds that he had some difficulty in getting the magneto fitted, but that eventually Messrs. Wyer and Eggleston, East Laithe Gate, Doncaster, succeeded in adjusting it. He anticipates that, owing to more regular running, it will save its cost in twelve months in wear and tear alone, to say nothing of temper and time.

PISTON WEAR.

The St. Pancras Garage Company, whose fleet of taxicabs comprises fifty De Dion Bouton four-cylindered 14-h.p. cars, has recently had the engines of all of them overhauled, and has found, we are informed, that despite the fact that the average distance each car has run is 22,000 miles, the wear shown by the pistons in no case exceeds 0.008 in. This is regarded as remarkable in view of the excessive strain to which the engines of taxicabs are subjected owing to the exigencies of driving in crowded streets.

MOTOR *v.* BROUGHAM.

F.R.C S.Eng. sends us the following:

Cost of Running a 15.9-h.p. Daimler Limousine Motor Car in 1911.

Total mileage	5,650 miles.
For pleasure, about	1,300 ,,
For professional purposes, about ...	4,350 ,,
Total cost for year (including depreciation)	£306 9 7
Chauffeur	90 14 0
All other costs	110 0 0
Depreciation 20 per cent. of £528 18s. 2d. (initial cost) ...	105 15 7
Total cost per mile (nearly)	0 1 1
Chauffeur, per mile (nearly) ...	3.9d.
All other costs, per mile	4.6d.
Depreciation, per mile	4.5d.
Petrol used (approximately)	280 gallons.
Miles per gallon (approximately) ...	20 miles.
Car unavailable on account of re-varnishing and repairs	21 days.

The car was bought in June, 1910.

Former Cost of Running a Brougham and Two Horses (one in morning, the other in afternoon).

Total cost (including depreciation) ...	£210 0 0
Mileage (all for professional purposes), about	4,000 miles.
Cost per mile	1s. 0½d.

The limousine exceeds the brougham in appearance, readiness, speed, comfort, and convenience, and exhilarates the mind, whilst driving in a brougham dulls it. I should not like to go back to the latter. Thanks to the chauffeur, the car looks almost like new.

LUNACY IN ENGLAND AND WALES.

THE annual Report of the Commissioners in Lunacy for the year 1910[1] is published in two parts, the first containing the Report of the Commissioners proper, and the second part the statistical tables upon which the report is founded. Part I was referred to in a leading article published in this JOURNAL on August 5th, 1911. In that article the main facts were given as to the numerical and proportional increase of the insane and the effect of accumulation inside asylums in bringing about the alleged increase of insanity.

Increase of Insanity.

Table I, Appendix A, shows that on January 1st, 1910, there were 130,553 lunatics, idiots, and persons of unsound mind known to the Commissioners in England and Wales, of whom 10,616 were private patients, 118,901 pauper lunatics, and 1,036 criminal lunatics; whilst on January 1st, 1911, there were 133,157 lunatics, idiots, etc., of whom 10,890 were private patients, 121,172 pauper patients, and 1,095 criminal lunatics, giving a total numerical increase for the year of 2,604, as compared with the increase for 1909 of 1,766. The private patients increased by 274 (increase in 1909 was 223), the pauper patients by 2,271 (increase in 1909 was 1,524), and the criminal lunatics by 59 (increase in 1909 was 19). The year 1910 was thus, so far as the numerical increase is concerned, an unfavourable year as compared with the preceding year, though better than 1908, when the total increase was 2,703.

As compared with the general population, the ratio of total lunatics per 10,000 was 36.40 on January 1st, 1911, as compared with 36.10 on January 1st, 1910, and with 36.02 on January 1st, 1909; or 1 lunatic to 275 of general population on January 1st, 1911, as compared with 1 to 277 on January 1st, 1910, and 1 to 278 on January 1st, 1909.

Taking the individual classes, the ratio of private patients per 10,000 of population was 2.97 on January 1st, 1911, as compared with 2.92 on January 1st, 1910; that of pauper lunatics 33.75 on January 1st, 1911, as compared with 32.83 on January 1st, 1910; and that of criminal lunatics 0.35 on January 1st, 1911, as compared with 0.29 on January 1st, 1910.

Turning to the more valuable index to the growth of insanity of the proportion to population of admissions, Table III, Appendix A, shows that during the ten years 1901–1910 the ratio of total admissions rose from 6.37 per 10,000 of population in 1901 to 6.93 in 1902, then fell steadily to 6.26 in 1907, rose to 6.29 in 1908, fell again to 6.09 in 1909, and still further to 6.04 in 1910. Of all statistics bearing on this matter, however, the ratio of *first* admissions to general population is probably the most certain index to the actual increase or decrease of insanity, and here Table III, Appendix A, shows that during these same years of 1901–1910 the ratio of *first* admissions per 10,000 of population rose from 4.99 in 1901 to 5.76 in 1902, fell steadily to 5.16 in 1906, rose to 5.19 in 1907, and remained at the same figure during 1908, then fell to 5.00 in 1909, and still further to 4.96 in 1910. These figures are satisfactory, and afford strong internal evidence that the considerable apparent increase of the insane is not due to any actual increase of insanity, but is the result of such factors as accumulation from diminishing death and recovery rates and the possible more frequent certification of recurrent cases of insanity. Next year's figures, which will permit of collation with the census returns of 1911, will be awaited with much interest.

Distribution.

On January 1st, 1911, the total number of 133,157 lunatics, etc., were distributed as follows: In county and borough asylums, 99,742; in registered hospitals, 4,585; in metropolitan licensed houses, 1,669; in provincial licensed houses, 951; in naval and military hospitals, 167; in criminal lunatic asylums, 895; in ordinary workhouses, 11,685; in metropolitan district asylums, 7,043; and residing with relatives or others, 6,069.

The total number of cases under treatment during the year 1910 in institutions or as private single patients (that is, excluding those in metropolitan district asylums, in ordinary workhouses, and those residing with relatives or others) was 131,275, including 778 in idiot establishments, or excluding idiot establishments, 128,956.

Table XI, Appendix A, shows the total number of pauper lunatics, idiots, etc., in the various administrative counties, county boroughs, and boroughs on January 1st, 1906, and January 1st, 1911, giving the increase in each case for the five years expressed as percentages. From this it is seen that the average annual increase for all counties was 1.5 per cent., for county boroughs 2.5 per cent., and for boroughs 1.0 per cent., or a total increase of 1.8 per cent. The greatest increase in the counties was that of 5.9 per cent. in the case of Middlesex; the greatest county boroughs 8.4 per cent. in the case of Hastings and West Hartlepool; and the greatest borough increase that of King's Lynn, with 9.6 per cent., and Bury St. Edmunds close behind with 9.1 per cent. These increases, of course, do not necessarily indicate actual increases in insanity, but possibly only increases in population by changes in area.

Each succeeding year the Commissioners' Report shows an increasing proportion of the certified insane in asylums, hospitals, and licensed houses, and a diminishing number in workhouses and with relatives or others. This is again shown in 1910, the proportion in asylums, etc., having risen during the year from 79.89 to 80.04 per cent. Those in workhouses underwent a small increase from 15.37 to 15.46 per cent., but, we are glad to note, those with relatives or others fell from 4.74 to 4.50 per cent.

The total cases under treatment during the year numbered 131,275, as compared with 130,671 in 1909, and 128,399 in 1908. The average number daily resident in 1910 was 107,646 (males, 50,233; females, 57,413), as compared with 105,687 in 1909, and 103,671 in 1908.

Occupations.

Very interesting material for analysis is furnished by Table XIV, Appendix A, which shows the number of insane in institutions arranged according to occupations, as compared with the numbers having these occupations in the general population. Taking, first, professional occupations, during the three years 1907–09, civil and mining engineers gave the highest ratio with 48.9 per cent. per 10,000; then painters, engravers, and sculptors, 27.3 per 10,000; architects, 17.6 per 10,000; male musicians, singers, etc., 16.5 per 10,000; lawyers, 14.8 per 10,000; medical men and women, 12.9 per 10,000, and clergymen, 12.3 per 10,000. No ratios could be given in the case of soldiers and sailors, as the statistics were unreliable. The principal ratios of those in domestic offices or services were as follows: Charwomen, 29.5; domestic indoor servants, males, 17.8; females, 23.6; gardeners, 11.7; caretakers, 9.8; gamekeepers being the lowest with 6.6. Of commercial occupations, commercial travellers gave the highest ratio with 15.5, and brokers, etc., the next highest, with 12.6 per 10,000. Railway men generally gave low ratios, ranging from 1.4 in the case of pointsmen to 9.5 per 10,000 in the case of railway labourers. Of those employed on roads, livery stable keepers gave the fairly high ratio of 20.0, whilst of those engaged on the sea, the merchant service gave a ratio of 16.5 per 10,000. Of remaining occupations, the following are the outstanding ratios: Warehousemen, 43.0; coal heavers, 14.2; agricultural labourers, 12; fishermen, 9.7; brewers ,5.1; costermongers—males, 28.3, females, 34.0; general labourers, 39.5, and persons living on their own means, 5.5 in the case of males and 7.9 in that of females.

Admissions.

The total number admitted during the year to all institutions (excluding ordinary workhouses and metropolitan district asylums, but including single patients and also excluding transfers and readmissions) was 22,141, as compared with 21,992 in 1909, 22,447 in 1908, and 22,119 in 1907. Excluding idiot establishments, the total admissions show an increase over those of 1909 of only 97. To the separate classes of institutions the numbers admitted were as follows: To county and borough asylums, 19,942; to registered hospitals, 818; to metropolitan licensed houses, 448; to provincial licensed houses, 348; to naval and military hospitals, 121; to criminal lunatic asylums, 96; as private single patients, 88; and to idiot establish-

[1] Sixty-fifth Report of the Commissioners in Lunacy. Part II. London. 1911. Published by His Majesty's Stationery Office, and to be purchased from Wyman and Sons, Limited, Fetter Lane, E.C. Price 5s.

ments, 280. Excluding idiot establishments, the 21,861 admissions were composed of 2,451 private patients, 19,147 pauper patients, and 263 criminal lunatics. As usual, in all classes, with the exception of criminal lunatics, the female admissions outnumbered the male, the figures for 1910 being: Male private patients, 1,037, and female, 1,414; male pauper patients, 9,044, and female, 10,103; male criminal lunatics, 223, female, 40. As to the age of the admissions, Table XXII, Appendix A, shows that during the three years 1907–09 on an average 314 were below the age of 15 years; 963 were between 15 and 19; 1,905 between 20 and 24; 4,708 between 25 and 34; 4,741 between 35 and 44; 4,062 between 45 and 54; 2,767 between 55 and 64, and 2,259 of 65 years and upwards. From this it might appear that the most vulnerable age periods, so far as mental diseases are concerned, are between 25 and 34 and between 35 and 44; but the succeeding table, Table XXIII, Appendix A, which gives the ratios per 10,000 of each age period to the whole population, shows a gradual ascent from the 0.3 per 10,000 of those under 15 years of age to the 14.9 per 10,000 of those over 65 years of age.

As to civil state of the total average for these years of 21,718 admissions, 9,493 were single, 9,482 were married, 2,624 were widowed, and in 119 the state was not known. If the ratios to the general population at all periods be considered, the proportion per 10,000 are: Single, 4.9; married, 8.4; and widowed, 14.6. This is, however, due to the fact that the number of patients admitted under the age of 20 were relatively few, thus lowering the ratio to the young population outside asylums. If only admissions of marriageable ages be considered, considerably more single than married or widowed persons were admitted.

Turning to the character of the admissions as to whether they were first attack cases or not, if those in whom this was not known be excluded, there was a yearly average over the three years 1907–9 of 19,609 admissions. Of these the attacks were stated to be first attacks in 14,454, or 73.7 per cent., and not-first attacks in 5,155, or 26.3 per cent. Considering the same three-yearly average, the 21,718 admissions were classified as follows: Recent mania, 5,041; chronic mania, 557; and recurrent mania, 1,077; recent melancholia, 4,877; chronic melancholia, 474; and recurrent melancholia, 780; senile dementia, 1,177; secondary dementia, 508; general paralysis, 1,552; insanity with epilepsy, 1,013; delusional insanity, systematized, 725; non-systematized, 878; confusional insanity, 648; primary dementia, 437; insanity with grosser brain lesions, 231; stupor, 189; acute delirium, 80; alternating insanity, 53; volitional insanity, 64; and moral insanity, 30. Also there were 1,326 cases admitted of congenital or infantile mental deficiency, of whom 442 suffered from epilepsy and 38 were moral imbeciles.

The epileptics formed 2.1 per cent. of the private admissions during the three years under review, and 8.0 per cent. of the pauper admissions, whilst the general paralytics formed 6.6 per cent. of the private admissions and 7.2 per cent. of the pauper admissions, giving total percentages of 7.3 per cent. of the epileptics and 7.1 per cent. of general paralysis.

Tables XV, XVI, XVII and XVIII set forth the assigned causes and associated factors in the direct admissions, and also in the first-attack cases of the direct admissions by a yearly average spread over the three years 1907–9. Taking here the whole direct admissions—that is, first-attack and not-first cases together—alcohol was assigned in 3,289, or 15.4 per cent. of the total (males, 22.1 per cent.; females, 8.7 per cent.); or in 276, or 11.2 per cent. of the private admissions (males, 15.5 per cent.; females, 6.9 per cent.), and in 3,013, or 15.9 per cent. of the pauper admissions (males, 23.0 per cent.; females, 8.9 per cent.). Acquired syphilis was assigned in 1,005, or 4.7 per cent. of the total (males, 8.2 per cent.; females, 1.2 per cent.); or in 140, or 5.9 per cent. of the private admissions (males, 11.2 per cent.; females, 0.6 per cent.), and in 865, or 4.6 per cent. of the pauper admissions. It will be noted that whereas alcohol was apparently a much more frequent cause of insanity in the pauper admissions, both male and female—though preponderatingly in the male paupers—than in the private admissions, syphilis was a much more frequent cause in the private male admissions than in the pauper class. Drug habits were assigned in 45, or 0.2 per cent., and again this was more pronounced in the private class—0.7 per cent. for males and females, as compared with 0.1 per cent. in the case of male pauper and 0.2 per cent. in the case of female pauper admissions. The remaining toxic factors do not offer material for comparison between two classes of patients, but were assigned in 1,137, or 5.3 per cent. Lesions of the brain and spinal cord were assigned in 495, or 4.7 per cent.; epilepsy in 1,272, or 5.8 per cent., and other neuroses in 242. Various bodily affections, of which cardio-vascular degeneration was the chief (680, or 31 per cent.), were assigned in 1,810. Physiological defects and errors were assigned in 1,001; critical periods in 3,503, or 15.9 per cent.; and child-bearing in 800 women, or 7.1 per cent. of the female admissions. Also bodily trauma was assigned in 667, or 3.5 per cent.; and mental stress in 4,657, or 21.4 per cent. Comparison of the private and pauper admissions shows that mental stress was assigned as cause in 30.1 per cent. of male private and 31.8 per cent. of the female private admissions, as compared with 18.0 per cent. for the male pauper and 22.3 per cent. for the female pauper admissions. An insane heredity was ascertained in 5,072, or 23.3 per cent. of the total direct admissions for the three years 1907–9. Curiously enough—seeing that private patients would naturally be expected to know more concerning their forbears than pauper patients—an insane heredity was ascertained in only 18.0 per cent. of the male private patients as compared with 21.2 per cent. in the case of male pauper cases; the female private admissions, on the other hand, gave an insane heredity in 27.3 per cent., as compared with 25.5 per cent. for female paupers. An epileptic heredity was ascertained in 354, or 1.6 per cent.; a neurotic heredity in 304, or 1.3 per cent.; an eccentric heredity in 111, or 0.5 per cent.; and an alcoholic heredity in 1,134, or 5.2 per cent. The only point for comparison here is that an alcoholic heredity was elicited in 5.4 per cent. of the male pauper and 5.8 per cent. of the female pauper admissions, as compared with 2.2 per cent. in the case of the male private and 2.1 per cent. in the case of the female private patients. Lastly, in 2,662, or 12.2 per cent., no principal factor could be assigned; in 1,701, or 7.8 per cent., no factor at all was assignable, and in 1,957, or 9.0 per cent., no factor was ascertained, owing to defective history.

Discharged as Recovered.

During the year 1910, and excluding idiot establishments, there were discharged as recovered from all institutions 7,501, giving a total recovery-rate, calculated upon the admissions, after excluding transfers, of 34.31 per cent. The average recovery-rate for the ten years 1901-10 was 36.49 per cent. Since the year 1905, when it stood at 37.79 per cent., the recovery-rate for all institutions had dropped steadily year by year to the present figure. Taking the recovery-rates for 1910 of the separate institutions and giving after each in parentheses the average for the ten years 1901-10, the figures work out as follow: County and borough asylums 33.86 per cent. (average 35.95); registered hospitals 42.66 per cent. (average 44.92 per cent.); metropolitan licensed houses 25.29 per cent. (average 33.36), provincial licensed houses 37.35 (average 38.95); naval and military hospitals 35.54 (average 52.92); criminal lunatic asylums 24.02 (average 27.87); and private single patients 56.74 (average 32.58). With the exception of the private single patients, whose numbers are so small as to be practically inconsiderable, the year 1910 was marked by low recovery-rates.

Deaths.

During the year, including those in idiot establishments, a grand total of 9,840 deaths occurred, giving a death-rate, calculated on the average number daily resident, of 9.14 per cent. Excluding idiot establishments, 9,777 deaths occurred, giving a death-rate of 9.26 per cent. This death-rate may be compared with that of 9.78 for 1909, or 9.53 for 1908, or the average of 9.87 for the ten years 1901-10.

The death-rates for the separate institutions were as follow, with the averages for the past ten years in parentheses: County and borough asylums, 9.52 per cent. (average, 10.16); registered hospitals, 6.09 per cent. (average, 6.76); metropolitan licensed houses, 10.69 per cent. (average 12.17); provincial licensed houses, 8.7 per cent. (average, 7.75); naval and military hospitals, 7.93 per cent. (average, 10.75); criminal lunatic asylums, 2.12 per cent. (average, 2.51); and private single patients, 5.62 per cent. (average, 6.88). Like the recovery-rates,

the death-rates, therefore, were low for practically all institutions during 1910. As compared to death-rates of the general population outside asylums, of course, the death-rates of asylum inmates are very high at all age periods. Thus, Table XIII, Appendix A, shows that the ratio of deaths in asylums during 1909 per 1,000 of asylum inmates during that year was for those under the age of 15 years 46.4 in the case of males and 57.6 in the case of females; whereas the death-rate per 1,000 for the same age period in the population at large was 15.9 for males and 13.5 for females; similarly for the age period 15 to 19 the asylum inmates gave a death-rate of males 91.5 and females 59.3, as compared with 2.8 and 2.6 respectively in the general population. Those interested will find the complete details for all age periods on pp. 146 and 147 of the Commissioners' Report.

Turning to the causes of death in the 9,806 who died in county and county borough asylums, hospitals, and licensed houses during the year 1910, Table XXVII, Appendix A, shows that 2,848 died of diseases of the nervous system, including 1,691, or 17.2 per cent. of the total deaths, from general paralysis, and 396 from epilepsy; 1,192 died from heart disease, and 478 from diseases of the blood vessels; 469 from diseases of the respiratory system; 172 from diseases of the digestive system; 497 from genito-urinary diseases, including 406 from chronic Bright's disease; 21 from diseases of the lymphatic and ductless glands; 14 from diseases of bones; 8 from mastoid disease; 3 from rodent ulcer; 4 from accidents of childbirth; 58 from accident or violence; 860 from conditions not specified—that is, mainly from senile decay (821); and 3,182 from general diseases, including 476 from lobar pneumonia, 257 from bronchopneumonia, 223 from dysentery, and 1,599, or 16.3 per cent. of the total deaths, from tuberculous diseases.

As usual, the Commissioners furnish a tabular statement (Table XII, Appendix B), showing the mortality from tuberculosis in county and borough asylums in the year under review, the asylums being arranged in three groups—namely, those with more than 1,000 inmates, those with 500 to 1,000 inmates, and those with less than 500. The first group, composed of thirty-four asylums, gave proportions of tuberculous deaths ranging from 7.9 per cent. of total deaths in the case of Colney Hatch to 25.4 in the case of Whittingham (Lancs.), with an average of 15.9 per cent.; those of the second group gave mortalities ranging from 4.6 per cent. in the case of the City of London Asylum to 42.9 per cent. in the case of Cotford (Somerset), with an average of 17.9 per cent.; and the last group, those with less than 500 inmates, gave mortalities ranging from none in the case of the three asylums—Scalebor Park, London Epileptic Colony, and York City—to 30.5 per cent. in the case of Sunderland, with an average of 14.2 per cent. The total proportion of tuberculous deaths in county and county borough asylums was 16.6 of the deaths from all causes.

ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD.

PART II of the fortieth annual report[1] of the Local Government Board for 1910–11 deals with public health and local administration, county council administration, and local taxation and valuation. Under the heading of Housing of the Working Classes it is stated in the report that of the 1,476 dwelling-houses in respect of which closing orders were obtained or made during the whole year 1909–10, no less than 700 were dealt with by local authorities under the provisions of the Housing, Town Planning, etc., Act, which only became law on December 3rd, 1909. This shows that considerable activity prevailed in this matter between that date and March 31st, 1910, and there are indications that the provisions of Section 17 of the Act in regard to the closing of houses unfit for habitation were extensively used during the year 1910. With regard to closing orders, 34 appeals relating to 168 houses and two blocks of artisans' dwellings were made during 1910 to the Board. In 4 cases affecting 25 houses the closing orders were confirmed and the appeals dismissed; in 3 cases affecting 5 houses the appeals were successful; in 11 cases affecting 74 houses they were abandoned; and in 6 cases affecting 21 houses and two blocks of artisans' dwellings the appeal, owing to some informality, could not be entertained by the Board.

[1] *Fortieth Annual Report of the Local Government Board—1910-11.* Part II (*a*) Public Health and Local Administration. (*b*) County Council Administration. (*c*) Local Taxation and Valuation. London: Wyman and Sons, Limited. 1s. 10d. (Cd. 5978.)

Medical Officers of Health.

At the end of 1910 the appointment of medical officer of health had been sanctioned by the Board in 1,017 of the 1,134 boroughs and urban districts in England and Wales, and in 648 of the 666 rural districts. In some cases sanction to an appointment had not been applied for, while in others sanction had been refused owing to the terms or the conditions of the appointment being unsatisfactory. There were only 13 rural districts employing more than one medical officer of health. In these 13 districts there were 29 medical officers of health. In 50 cases a medical officer of health was acting for more than one district and giving his whole time to public health work. These 50 medical officers of health were appointed to 143 boroughs and other urban districts and 151 rural districts. There were in addition 138 whole-time medical officers of health appointed to a single borough or district. Thus, of the 1,800 districts in the country, 432 had the services of a whole-time officer. The report states that the general experience of those districts which have adopted the suggestion of the Board to combine for the appointment of a whole-time medical officer of health is that a saving has been effected in the cost of administration, and that the public health of the districts has improved.

Milk Supply.

There are now only 75 urban and 69 rural authorities who have not made regulations under the Dairies, Cowsheds, and Milkshops Orders. Over 160 authorities have made arrangements for the veterinary inspection of milch cows in their districts.

PLAGUE INVESTIGATION IN INDIA.

IN a supplement containing 206 pages to vol. xi, 1911, of the *Journal of Hygiene*, a series of reports on plague investigations in India, issued by the Advisory Committee appointed by the Secretary of State for India, the Royal Society, and the Lister Institute, are published.

XL.—An obituary notice is given of Major George Lamb, M.D.Glas., I.M.S., who had been associated with the work of the Committee since its commencement in 1905, for the most part as officer in senior charge of investigations in India.

XLI. *Recent Observations on Rat-Fleas.* — The chief points noted in this summary of recent work on rat-fleas elsewhere than in India are: (1) English field rats harbour *C. fasciatus* and *Ct. agyrtes* in about equal numbers. (2) The tropical rat-flea (*X. cheopis*) has been found on rats at Guy's Hospital in London in abundance. (3) The work of Chick and Martin shows that *C. fasciatus* feeds on man about as readily as on the rat or rabbit; the common mouse-flea (*Ct. musculi*) and *Ct. agyrtes*, on the other hand, bite man hardly or not at all. (4) Observations in Marseilles by Gauthier and Raybaud, in Sydney by Tidswell, and in Japan by Kitasato, show that at each place there is a seasonal variation in the prevalence of rat-fleas, especially of *X. cheopis*, and that the maximum abundance of fleas is found at the time of year when plague epidemics in man mostly prevail in the given locality.

XLII. *Preliminary Observations on the Protective and Curative Value for Rats of the Serum of a Horse Immunized with a Toxic Nucleo-Protein Extracted from the Plague Bacillus.*—The serum prepared by Sydney Rowland, when tested on rats, showed considerable antitoxic value, 1 c.cm. neutralizing about a hundred fatal doses of the toxic nucleo-protein with which the horse had been inoculated. It also had a good prophylactic value against infection with living plague bacilli, 1 c.cm. protecting every animal, and $\frac{1}{10}$ c.cm. 7 out of 10 rats against a dose of plague bacilli inoculated twenty-four hours later, which killed 80 per cent. of untreated rats. The serum was also efficacious in a curative way when administered subsequent to infection, and it is shown to save the lives of a sensible proportion of infected rats

even when given as long as twenty-four hours after infection. This is the more remarkable since the control rats, inoculated but untreated with serum, begin to die on the second day,

XLIII. *Investigations into Plague Vaccines.*—Dr. Rowland also makes a second report on the toxic nucleo-protein which he has extracted from the plague bacillus, and which, as he has previously shown, acts as a highly efficient vaccine in rats in doses so small as $\frac{1}{1,000}$ mg. This nucleo-protein forms loose compounds with chloroform and toluol, which are relatively non-toxic and are easily reversible (drying, vacuum); these compounds have greatly diminished immunizing power. The effect of heat on the toxic and immunizing powers of the nucleo-protein is much less if the whole bacillus is heated before extraction than when the extracted nucleo-protein is heated in solution in dilute saline. Extracts of the plague bacillus contain an active proteolytic enzyme. If this be allowed to act on the nucleo-protein, the immunizing power at first increases and then remains steady for some months. The toxic value, on the other hand, diminishes progressively, so that after some time the hydrolyzed extract is relatively non-toxic, but still forms a very efficient vaccine both against toxic nucleo-protein and against infection with live bacilli. Hence the protective and toxic properties of such an extract of plague bacilli are distinct.

XLIV. *Statistical Investigation of Plague in the Punjab.*—Mr. Major Greenwood presents a second and third report, in which, continuing his statistical analysis of the data collected by the late Major Lamb on the occurrence of plague in the villages of the Punjab and United Provinces, investigating the influence of proximity to railways, he finds that in districts containing large cities, villages near a line of railways are liable to a higher rate of plague epidemics than villages, similar in size and other respects, not so situated. This is probably due to increased opportunities for personal transit rather than to the movement of merchandise, since in purely or mainly agricultural districts proximity to railways does not entail any increased liability to plague infection. It is also shown that large villages tend to be infected earlier in the plague season than small villages, that the mortality from plague tends to be greater the earlier a village is infected, and that in nearly all cases large villages, when infected, suffer less heavily than smaller communities. There is some evidence that the same difference between large and small places obtained in England in the fourteenth to seventeenth centuries. Analysis of the possible explanations leads to the conclusion that the difference in mortality depends upon some material factor which varies with the size of the community rather than on the random incidence of plague infection on a population living in aggregates of varying size.

XLVI. *Observations on Plague in Eastern Bengal and Assam.*—The province of Eastern Bengal and Assam has suffered very little from bubonic plague, although it is in close proximity to heavily infected districts in Bengal (Calcutta, Saran). Imported cases from these districts have from time to time given rise to small outbreaks of pneumonic plague, but no bubonic epidemic has arisen. The Commission has made an inquiry lasting over a year into the conditions which might determine this immunity. In Dacca an investigation was undertaken for the whole twelve months into the prevalence of rats and fleas, and other places were visited for short periods. It appears that the freedom of the province from plague can chiefly be attributed to the scarcity of rats in the houses. Per 100 traps set, from 1 to 9 *Mus rattus* were caught in different places, as compared with 20 to 50 in Poona, Belgaum, Punjab villages, and other heavily infected localities. This comparative scarcity of rats seems to be due partly to the habits of the people, who are comparatively clean, neat and tidy in their household arrangements, and partly to the structure and disposition of the houses, which are either too well built or too flimsy to afford much shelter for rats. In many places also the houses are widely separated from one another. The Commission visited also the neighbouring town of Bhagalpur in Bengal, which has suffered rather severely from epidemic plague on several occasions; here they found the more usual ill-built, crowded, and dirty houses with mud walls, and 34 rats were caught for every 100 traps set. Rat-fleas were found to be about as common as elsewhere in India, varying from 2 to 8 per rat in different places. In Dacca weekly observations showed that there was a distinct seasonal variation in the prevalence of fleas, the maximum falling in April, that is, in the plague season as judged by the seasonal prevalence of plague in Calcutta (160 miles distant).

XLVII. *Observations on the Breeding of Mus rattus in Captivity.*—To breed wild rats successfully in captivity it was found necessary to have a separate hut for each pair. If several pairs were confined in the same hut, provided with artificial burrows, etc., not only were young never produced, but on being killed the females were never found pregnant. Under appropriate conditions, however, an active pair will produce from 29 to 44 young per annum; the commonest number in a litter is 6, with an average interval of 56 days. The young will breed when 5 months old, probably earlier, and in the absence of any mortality it may be calculated that a single pair will increase to 198 in twelve months and 858 in 16 months. Interesting data are given with regard to the rate of growth of young rats in length and weight; up to about 100 grams weight (14 weeks) they grow about 1 gram per day, weighing 4 grams at birth.

THE COMPOSITION OF CERTAIN SECRET REMEDIES.*

A RINGWORM CURE.

"DETHBLO," WILSON'S PATENT RINGWORM CURE.

THIS preparation is sold by W. T. Wilson, Haddenham, Bucks; a 1s. 1½d. package contained a bottle holding rather less than 2 fluid drachms of the preparation, and a brush for applying it.

It is advertised in the following terms:

THIS PREPARATION has been used by the Proprietor for many years in the treatment of Hundreds of Cases, and has never once failed to cure. . . .

An improvement is visible after one application. Two or three dressings in any but exceptionally severe cases are sufficient to effect a Cure.

No necessity for Cutting the Hair or Shaving the Head.

It Cures when all other remedies have been tried and failed. Obstinate cases, after eighteen months of other treatment, have yielded to a few applications of "Dethblo."

It is Harmless to Hair or Scalp of even the youngest children; infants in arms have been successfully treated on many occasions.

The directions on the label are:

Apply with brush enclosed, well penetrating the infected parts with "DETHBLO." Treatment should be given every other day for few days, and the infected part should not be washed until satisfactory improvement is noticed.

Analysis showed the liquid to contain ferrous sulphate and acetic acid; a trace of coloured organic matter was also present, such as would be due to a small portion of the acetic acid having been added in the form of vinegar, and the odour of the liquid resembled that of vinegar rather than that of acetic acid only. The quantities found were, in 100 parts by measure:

Ferrous sulphate	33.7	parts
Acetic acid (estimated as glacial) ...	11.9	,, by measure

Careful search did not reveal the presence of any other ingredient.

Estimated cost of ingredients of 2 fluid drachms, one-fiftieth of a penny.

* Previous articles of this series were published in the following issues of the BRITISH MEDICAL JOURNAL: 1904, vol. ii, p. 1585; 1906, vol. ii, pp. 27, 1645; 1907, vol. i, p. 213; vol. ii, pp. 24, 160, 209, 393, 530, 1653; 1908, vol. i, pp. 833, 942, 1373; vol. ii, pp. 86, 505, 1022, 1110, 1193, 1285, 1566, 1697, 1875; 1909, vol. i, pp. 31, 909, 1128; vol. ii, p. 1419; 1910, vol. i, pp. 151, 213, 393, 1005, 1063, 1120; vol. ii, pp. 982, 1350, 1928; 1911, vol. i, pp. 26, 91, 823, 1324; vol. ii, pp. 32, 77, 456, 767, 854, 1543; 1912, vol. i, p. 26, 141. Analyses are also to be found in *Secret Remedies* (chapters i and ii). London: British Medical Association, 429, Strand. Price 1s., post free 1s. 3d.

A CHASSIS of the Nazarro car, which has been introduced into England by Messrs. Newton and Bennett, Limited, 35, King Street West, Manchester, and 34, Knightsbridge, London, will be shown for the first time in England at the Motor Show at Manchester. Only one type, 20 to 30 h.p., for touring and racing will be made.

LITERARY NOTES.

MESSRS. CONSTABLE AND CO. will commence the publication in April next of a new quarterly scientific review, to be entitled, *Bedrock: A Quarterly Review of Scientific Thought*. The *Review* will appear as an organ devoted to the full discussion of such subjects as the effect on the race of native and foreign disease, of intemperance, of city life and luxury; the fitness of women for government; the real nature of the psychological and physiological difference between sexes, races, and classes; the present relation of science to religion; theories of evolution and heredity; the trend of scientific and mechanical research, invention, and development; in fact, with all the greater problems of modern science. It will, further, make a feature of notes on current research work and reviews of selected scientific books. The Editorial Committee consists of Sir Bryan Donkin, F.R.C.P.; Professor E. B. Poulton, F.R.S., LL.D., Hope Professor of Zoology in the University of Oxford; Professor H. H. Turner, D.Sc., F.R.S., Savilian Professor of Astronomy in the University of Oxford; and G. Archdall Reid, F.R.S.E. The acting editor will be Mr. H. B. Grylls. The first number will contain amongst other contributions: Recent Researches on Alcoholism, by Dr. G. Archdall Reid; Darwin and Bergson as Interpreters of Evolution, by Professor Poulton; and Social and Sexual Evolution, by The Hermit of Prague.

Mr. Edward Arnold announces a series of international medical monographs, which is under the general editorial supervision of Dr. Leonard Hill and Dr. William Bulloch. At short intervals there will be published monographs dealing with subjects of exceptional interest and importance, each by a leading authority who has made a special study of the particular subject. It is hoped that readers interested in any special branch of medical science, or who are following the rapid progress of knowledge in some new phase of research, will find in a concise form the results of the leading investigators throughout the world. The practising physician also will find the volumes of great value, special attention being given to the practical application of the results of scientific research to the treatment of disease. The following volumes are now ready: *The Mechanical Factors of Digestion*, by Dr. Walter B. Cannon, George Higginson Professor of Physiology, Harvard University. *Syphilis: a Systematic Account of Syphilis from the Modern Standpoint*, by Dr. James McIntosh, Grocers' Research Scholar, and Dr. Paul Fildes, Assistant to the Bacteriologist of the London Hospital. *Blood Vessel Surgery and Its Applications*, by Dr. Charles Claude Guthrie, Professor of Physiology and Pharmacology, University of Pittsburgh, etc. The following will be ready shortly: *Caisson Disease and Diver's Palsy; The Illness of Workers in Compressed Air*, by Dr. Leonard Hill. *Lead Poisoning and Lead Absorption: the Symptoms, Pathology, and Prevention, with Special Reference to their Industrial Origin and an Account of the Principal Processes Involving Risk*, by Dr. Thomas M. Legge, and Mr. Kenneth W. Goadby. *The Protein Element in Nutrition*, by Major D. McCay, I.M.S., Professor of Physiology, Medical College, Calcutta. *Shock: The Pathological Physiology of Some Modes of Dying*, by Yandell Henderson, Ph.D., Professor of Physiology, Yale University. *The Carrier Problem in Infectious Disease, with Particular Reference to Enteric Fever, Diphtheria, Cerebro-spinal Meningitis, Bacillary Dysentery, and Cholera*, by Dr. J. C. G. Ledingham, Chief Bacteriologist, Lister Institute of Preventive Medicine; and Dr. G. F. Petrie, of the same Institute. Each work can be obtained separately.

Chilblains are such a common cause of suffering in childhood that the number and variety of remedies for these disfiguring effects of cold weather need hardly surprise us. Dr. Maurice de Fleury, writing in the December number of *L'Hygiène*, devotes a couple of pages to the consideration of different forms of treatment, though he is careful to warn his readers that none of them are by any means infallible. They are, in fact, for the most part, methods of prevention rather than cure. Acting on the principle that chilblains (which Dr. de Fleury is inclined to consider as signs of a constitutional tendency to gout) are frequently the result of some defect in the general health, the writer recommends special attention being paid in winter to the diet of children afflicted with a poor circulation. Not only should the amount of heat-producing foods be considerably increased, but the patient, in addition, should be treated with cod-liver oil, or, according to some authorities, with quinine; whilst, as regards external treatment, massage and friction are often of great assistance in counteracting the ill effects of exposure to cold and damp. Eau de Cologne and spirits of camphor both serve to harden the skin, and so render the extremities less susceptible; and brushing the fingers with a nailbrush steeped in soapy water, and wrapping the toes in silk paper so as to keep them from coming into contact either with each other or with the stockings, may also be of use as a preventive measure. If, however, in spite of all precautions, the chilblains persist in making their appearance, care should be taken to prevent their breaking by the family physician or by a good children's doctor. The care of the teeth is another important consideration in childhood; and the December number of *L'Hygiène* contains an interesting article on this subject by George Viau. Madame Augusta Moll-Weiss displays her usual discernment and good sense in the advice she gives with regard to the management of a sick-room, whilst Dr. André Castex has contributed a long article on the care of the voice. Mention should be made, moreover, of M. Edmond Cleray's notes on old-world magic and magicians; whilst Dr. Cabanès's charming account of Madame de Sévigné's various illnesses is one of the most delightful features of a very interesting number.

The recently published *Year Book of the Viking Club*, which contains a full account of the proceedings of the Society for Northern Research during the year 1910–11, gives some interesting details concerning the old Norse superstitions connected with pregnancy and childbirth. In the early days of Scandinavian history, when the chief end and object of marriage was the rearing of a large and stalwart family, who in due time would be able to defend their parents' homestead and property, women were expected not to shirk the burdens and responsibilities of motherhood, and to bear children was at once their duty and their honour. As is the case with all primitive peoples, barrenness was looked upon as a curse, and many were the means to which the childless wife had recourse in the hope of obtaining the coveted blessing of children. In Ireland, for instance, the would-be mother was fed with certain parts of the wild goose, or the evening after-milkings whilst they were still warm, without, however, her knowing the nature of the food she was expected to consume. In a certain parish of Shetland, called Sandsting, "an egg-shaped pebble of quartz, 2 in. by 1½ in.," was considered an infallible cure for sterility. This stone, which was believed to have been brought originally from Italy, and was passed from one wise woman to another for generations, was placed in burn-water, in which the sterile woman washed her feet, and through this simple act obtained her heart's desire. There seems reason to believe, moreover, that in Norway and Iceland certain fishes were credited with the miraculous power of producing conception; whilst in Sweden she who desired her first-born to be a son, was advised to take a baby boy to sleep with her on the night before her marriage. The belief, still prevalent in Iceland, that a shower of rain on the wedding day is the forerunner of a fruitful and happy union, lingers also in certain parts of this country, and is, perhaps, yet another sign of the deep and lasting impression made by the wild Norsemen in their periodic descents upon English shores.

The opening of the Princess Christian Farm Colony at Hildenborough in Kent, which took place in July last and was noticed in the pages of this JOURNAL, marked an important epoch in the history of the National Association for the Care of the Feeble-minded. The founding of this "colony" was one of the earliest attempts made in England towards the permanent segregation of the unfit; and the January number of *The Child* contains an interesting account by Miss A. H. P. Kirby, the secretary of the association, of the results of this experiment. "The experiments made in the first homes of the National Association," remarks Miss Kirby, "proved that, in the majority of instances, to train the feeble-minded and then send them out into the world at large again was cruel kindness, and only invited almost certain disaster." The aim of the farm colony at Hildenborough, therefore, is to provide a permanent home for a certain number of persons suffering "from such severe mental defects

as practically to cut them off from the rest of the world," and one, moreover, where "the excellences of all are used to make up for the deficiencies of each, and the aim of the Colony is to attain to the dignity of a sort of industrial village, where the whole of the requirements are met, as far as possible, by the work of the colonists themselves." Mental deficiency, fortunately, does not necessarily preclude a certain amount of manual skill; and, thanks to proper training and constant supervision, the inmates of the Hildenborough colony, both male and female, are now able to take an active part in the various industries carried on with such signal success on this charming estate. A home of a different kind, though no doubt in its own sphere equally useful, is the large orphanage founded over forty years ago at Clapham by the famous preacher, Spurgeon, a short account of which has been contributed to the January number of *The Child*, by the present headmaster, Mr. Vernon J. Charlesworth. The same number of this interesting magazine also contains articles by Drs. John Priestley and John Lambert, on the medical inspection of school children and the proper cleansing of school buildings; whilst much useful information may be gathered from Dr. A. S. Cobbledick's remarks on the important subject of defective eyesight in children, and Dr. G. Norman Meachen has given some valuable advice on the prevention and cure of that scourge of childhood—the common chilblain.

SCIENCE NOTES.

WALKER contributes a very valuable paper to the *Philippine Journal of Science* for October, 1911, on "A comparative study of the amoebae in the Manila water supply, in the intestinal tract of healthy persons, and in amoebic dysentery." The subject is one of the greatest importance, though at the present moment great confusion as to classification and other points prevails. Walker's chief conclusions are that the amoeboid organisms found in the Manila water supply and in the intestinal tract of man belong to the genus *Amoeba* Ehrenberg. He believes that the cultivable species of the genus *Amoeba* are not parasitic in the intestinal tract of man, and when obtained from cultures from the intestine are probably derived from cysts of amoebae that have been ingested with water or food and have passed unchanged through the intestinal tract. Amoeboid organisms parasitic in the intestinal tract of man belong to a distinct genus *Entamoeba* Casagrandi and Barbagallo, these organisms being strict or obligatory parasites incapable of multiplication outside the body of their host or of cultivation on Musgrave and Clegg's medium. He recognizes one non-pathogenic species of this genus, the *Entamoeba coli* Schaudinn, and one pathogenic, *Entamoeba histolytica* Schaudinn, this latter including the *Entamoeba tetragina* Viereck. An infection with either *Entamoeba coli* or *Entamoeba histolytica* must always come, according to Walker, directly or indirectly from another infected person, water or uncooked food only transmitting amoebic dysentery when contaminated with faecal matter from a case of amoebic dysentery. An infection with *Entamoeba histolytica* may persist for an indefinite period after symptoms of dysentery have disappeared, and during this time resistant encysted entamoebae may be passed and become an important source of infection to others. Such persons become carriers of amoebic dysentery comparable to the "carriers" of typhoid fever or cholera.

That the colours of objects alter under the light from artificial illuminants is a commonplace of the general experience, yet the extent to which this shifting of colour-value takes place is surprising when it is scientifically considered. The purchaser of a carpet, linoleum, or piece of hand-painted chintz must suffer some misgivings when he sees how the colours which had pleased him in daylight, or under shop illumination, are degraded under the light, especially if it be yellowish, employed in his own apartment. Few attempts have been made—at least since the advent of the newer illuminants—to determine exactly the colour changes which are thus produced, but Mr. T. E. Ritchie, A.M.I.E.E., at the meeting of the Illuminating Engineering Society on January 16th, brought forward the results of some elaborate investigations on this subject. There is no need to enter into the details of his testing procedure, which consisted in photographing coloured silk ribbons on a panchromatic emulsion, firstly by daylight, and subsequently by the light of several artificial illuminants. The colours observed in the bright diffused daylight of a September noon being taken as the standard, it was found that a very close approximation was obtained with an inverted arc lamp of a particular commercial pattern, under which brown, green, blue and orange appeared normal, red slightly brighter, and mauve slightly darker. With an enclosed arc lamp of the single, long-burning type, red was lightened by several shades and some darkening was observed in each of the other colours. The colour-revealing properties of the inverted incandescent gaslight and the metallic filament incandescent lamp were about equally satisfactory. In both cases red was lightened by many shades, the green darkened and changed to a yellower tint, blue also darkened, and orange and yellow brightened. Ordinary gaslight was low down in the list, but as the days of the luminous gas flame without a mantle are so nearly ended it is not necessary to dwell upon the colour changes which were noted. With arc lamps used chiefly for exterior illumination, the author found the white-flame carbons give, especially in the lighter shades, a much nearer approximation to daylight than the yellow flame. The effect of the mercury vapour lamp upon colours was, of course, extraordinary, almost all the tints being curiously flattened or deadened, and this illuminant was only included for the purpose of indicating the extreme extent to which colours are changed by a light possessing in itself, perhaps, the nearest approach to a monochromatic spectrum of any yet available. The author expressed the opinion that, in view of the existence of illuminants which were at least sufficiently colour-true, and which had an advantage over daylight in that their intensity was constant, there was no excuse for confining classes for the teaching of painting or designing to daylight hours or for keeping art galleries closed after sunset.

Of some interest in connexion with the spread of infectious disease by flies is a recent communication by Horn and Huber.[1] The association of the paratyphoid B bacillus with flies has hitherto not attracted so much attention as that of the typhoid bacillus, but there has been a growing tendency to regard flies as possible carriers of all the enteritis group of organisms. One initial difficulty in the experimental demonstration of such a possibility is the fact that bacteria possessing many features in common with that group are of widespread occurrence in nature, and are to be found in the faeces of various animals and quite frequently in flies. It is also maintained by some that the enteritis bacilli themselves may exist as harmless saprophytes. Apart from the latter opinion, however, it is evident that some care must be exercised in pronouncing on the identity of enteritis-like bacilli obtained from flies. The observations of Horn and Huber have to some extent emphasized this necessity, but it must be remarked that few of the strains isolated by them would have been taken for *B. paratyphosus* B by most bacteriologists, even in the absence of serological evidence. Only two of the strains gave agglutinative reactions with paratyphoid B serum, and only to half its titre, and of these one agglutinated spontaneously in saline solution. None of the strains, in fact, could be regarded as true *B. paratyphosus* B, and, on the other hand, many of them could be identified with organisms of frequent occurrence in the faeces of cattle and horses. It may be added, however, that Nicoll,[2] in this country, has succeeded in obtaining *B. paratyphosus* B from flies, and there can thus be little doubt that flies may and do carry this organism as well as other members of the enteritis and typhosus groups.

[1] *Zeitsch. f. Infektionskrankh. der Haustiere*, x, 6, December, 1911, pp. 443-453.

[2] *Journ. Hygiene*, xi, November, 1911, p. 383.

THE late Dr. Joseph Bell, of Edinburgh, left, in addition to considerable real estate, personal estate in the United Kingdom valued at £62,654.

British Medical Journal.

SATURDAY, FEBRUARY 10TH, 1912.

EDUCATION OF CHILDREN IN THERAPEUTIC INSTITUTIONS.

PERHAPS the most important and suggestive aspect of the antituberculosis movement is that which concerns school children. What is the degree of incidence of tuberculosis in children? On what points is the diagnosis to be based? What measures are to be adopted for the protection and recovery of the affected? To what extent are such measures compatible with the maintenance of regular education? These are some of the questions which meet us on the threshold.

There can be little doubt that tuberculosis is much more frequent in children than was formerly—or, indeed, is generally—supposed. This view has in this country been advocated especially by Dr. R. W. Philip of Edinburgh, who, in a lecture before the Washington Tuberculosis Congress in 1908, stated that his personal observation had led him to the conclusion that no fewer than 30 per cent. of school children presented stigmata of tuberculosis; and abroad by Escherich, Hamburger, Monti, and von Pirquet. The more the facts are scrutinized the more does the view appear justified, though it cannot be said that it has been generally accepted by those concerned with the education of children or with the training of students of medicine. There is still much disregard of refined methods of diagnosis. A positive diagnosis is still limited too frequently to the undoubted case of so-called phthisis—a term which, if it means anything at all, means an advanced degree of tuberculosis. Many physicians hesitate, indeed, to admit the diagnosis unless tubercle bacilli be demonstrable. But tuberculosis is a slowly advancing infiltrative infection, and its manifestations are as definite as those in early syphilis. As the diagnosis of tuberculosis comes to be commonly made at this early stage, so in direct proportion will prophylactic and curative measures prove effective. As a rule, when tuberculosis can be reasonably suspected it is actually present, and the fact can usually be determined if only the patients be subjected to a sufficiently systematic and thorough examination on modern lines.

Without pinning ourselves down to a definite percentage, we may yet admit the great frequency of tuberculous infection in children, and are therefore bound to inquire what measures should be adopted in the interest of the child's health and education. It is manifest that for the larger number—that is, for those infected in slight degree—little more is needed than the intelligent application of large hygienic principles in the school, and, so far as it can be obtained, in the home. Much has been said as to the need of open-air schools for various groups of delicate children. The truth is, all schools ought to be directed on open-air principles. Artificial systems of ventilation should be abandoned as unphysiological. Natural cross-ventilation from large windows freely open should be encouraged. The child should be taught the greatest lesson of practical hygiene from day to day through the ever-open window. The evil effect of protective measures, whether in the direction of close, warm rooms, or in that of excessive, tight-fitting clothing, must be exposed and combated. School buildings should be simpler in construction, and the outlay thus saved should be spent in the provision and equipment of larger playgrounds.

Granting these general principles, we may be ready to agree that there is need for more rigidly open-air schools for children who are already definitely affected by tuberculosis, but who, without damage to their health, remain capable of education. Such schools ought to be related to—or rather, we should say, ought to be under the medical direction of—a recognized tuberculosis organization or institution. The institution may either be a sanatorium, as in the case of the school of the Royal Victoria Hospital at Edinburgh, which has been in active operation for a good many years, or a tuberculosis dispensary, as in the case of the Kensal House School, London, which is under the medical superintendence of the Paddington and Kensington Dispensary for Consumption. The essential point in the creation and government of such a school is that in matters medical, where the child's health is primarily concerned, the direction be vested entirely in the hands of the medical staff. It is natural that the Education Department or local education authority, in recognizing such a school, should satisfy itself as to the character of the medical institution under whose guidance the school is to be conducted, but it is equally clear that there should be no interference in relation to the actual medical direction.

Under such conditions, the possibilities of benefit to the community are conspicuous. It has been shown by experience, in Edinburgh, Liverpool, and London, that when simple lessons are adapted to the age, progress, and physical state of each child, a large amount of satisfactory education may be maintained, and that the progress of the child towards recovery is definitely hastened by the mental activity. Physical improvement and mental development go hand in hand; the same applies to crippled children under orthopaedic or other surgical treatment. Instead of the waste of time which enforced residence in a sanatorium or hospital would otherwise entail, the period of residence is profitably employed in the interest of education.

It is to be hoped that in the near future progressive educational authorities will generally appreciate the purpose and far-reaching significance of the combination to which we have referred. In London, so far, things have worked smoothly, despite the very deliberate ways of the Board of Education; it approved the first cripples' school which was started by Dr. Macalister for Liverpool children, but hesitated for more than a year before consenting to the proposal of the London County Council to take over the school for cripples established by private enterprise in the wards of the National Orthopaedic Hospital. This school, one of a group of schools for physically defective children, is associated with that in the Alexandra Hospital for Hip Disease, and it speaks well for the tact and good sense of all concerned that in more than ten years there has not been any friction in its working between the authorities of the Council and those of the hospitals.

Besides these two hospital schools, in which the teachers and the necessary apparatus are supplied by the Council, there are thirty-eight day-schools for cripples scattered about London; the tuberculosis school, to which reference has already been made, is carried on in a large house and garden rented by the Paddington Dispensary, but teachers and materials are supplied by and at the expense of the Education Committee of the London County Council. This is an open-air school when climate permits, and the object which the committee of the dispensary has in view is, while ensuring that the children are instructed in the ordinary subjects of elementary education, to teach them to live properly in their own homes, and so prevent them from becoming chronic consumptives and sources of infection to others. Last year there were over 80 children attending this school; this is a small number compared with the tuberculous population of London, but it is hoped that from these small beginnings great things may grow. Indeed, the London County Council has for four years maintained three open-air schools, but only one of these—that at Forest Hill—is open at this time of year. It is much to be wished that all the cripples' schools should be conducted in the summer months out-of-doors, and probably this will come in time. When the School Board for London handed over its duties to the London County Council, those ladies who had done such good work upon the Board found themselves ineligible for membership of the Council; but their services were not lost to the public, for administrative posts were found for them. At the present time the special schools are under the able superintendence of Mrs. Burgwin, who has seen and taken part in their establishment under the Board.

The proposal rejected in Edinburgh seems to have been closely similar to that accepted in London. The School Board of Edinburgh, in reply to the request of the Managing Committee of the Royal Victoria Hospital, failed (by a majority) to see its way to co-operate with the medical authorities of the hospital, who have for a good many years treated and taught a considerable number of tuberculous children. The proposal was a practical and inexpensive one, amounting to this—that the School Board should avail itself of the exceptional opportunities for the medical treatment of such children, and co-operate, in the interests of the children and of the School Board alike, by providing two or more teachers and a suitable classroom, so that the actual teaching might be conducted on more formal lines than were possible at the hands of voluntary teachers, the hospital authorities holding themselves responsible for the residence and maintenance of a large number, and for the medical supervision of all the accepted pupils. The School Board seems to have taken the untenable view that tuberculous children were either not worth educating at all or were likely to suffer by studies, notwithstanding the fact that these studies were recommended and were to be supervised by the medical authorities of the hospital.

THE PATHOLOGY OF ACUTE POLIOMYELITIS.

THE distinction between regional and generalized infectious diseases is frequently artificial. Many diseases which remain for the most part local, nevertheless produce a profound effect on the whole body. On the other hand, a disease which is generalized at an early stage may produce its most obvious lesions in certain restricted local areas, as, for instance, in a typical case of typhoid fever.

Acute poliomyelitis has generally been regarded as a disease in which the virus and essential tissue changes are confined to the central nervous system and its membranes—if we except the naso-pharynx and, in the case of experimental monkeys, the site of inoculation and the lymph track thence to the nerve centres. Flexner has recently published[1] the results of the *post-mortem* examination of eleven children, of whom ten died on the third to the eleventh day from the onset of acute poliomyelitis. He describes widely distributed pathological changes as occurring constantly in these cases. Besides the well-known lesions found in the central nervous system during the acute stages of the disease, the changes observed by Flexner were found in the lymphatic tissues, the spleen, and the liver.

He found hyperplasia of the lymphoid tissues throughout the body, especially in the lymph glands, and in the lymphoid tissue of the small intestine. The increase of the endothelial cells in the central parts of the glands was especially remarked, and was accompanied by softening of the glands. The spleen was enlarged and its Malpighian bodies increased in size. Other changes described as characteristic consisted of necrosis of groups of liver cells; the dimensions of such a group varied from a few cells to one-eighth of a lobule. The necrosis was succeeded by an invasion of lymphoid cells and polymorphonuclear leucocytes, and by rapid regeneration, evidenced by the active multiplication of liver-cell nuclei.

The general increase of lymphoid tissue in this disease has been briefly alluded to by previous writers, but widespread changes have not been so definitely described before, and have generally been regarded as inconstant. It remains to be shown whether the changes in the lymphoid tissues and spleen and in the liver indicate the presence of the living virus in these organs, or are due to toxic products formed at a distance.

The experimental evidence for the existence of virus in the internal organs, except the central nervous system, is not quite consistent. The experimental disease has very rarely been produced in monkeys by virus derived from parts of the body other than the central nervous system or the naso-pharynx. Krause and Meinicke, however, claim, and Marks has apparently proved, that the blood, spleen, and liver can convey the disease to rabbits, though in these animals the symptoms are of a very equivocal kind. The proof of the identity of the disease in rabbits and monkeys is only obtained when a monkey is again infected from a rabbit and shows signs of typical poliomyelitis.

Further additions to our knowledge of this disease from the experimental side have recently been published by Levaditi and his co-workers.[2] They show that though washings of mucus from the nasal cavities of an infected monkey are not capable of causing the disease when injected into another monkey, still the virus can be obtained by inserting a tampon into the diseased animal's nose and using for inoculation the fluid which has collected in it after twenty-four hours.

Levaditi, Gordon, and Danulesco,[3] have shown that the virus obtained from three fatal cases of acute

[1] *Journal of the American Medical Association*, January 13th.
[2] Landsteiner, Levaditi, and Danulesco, *Compt. Rend. d. l. Soc. d. Biolog.*, December 2nd, 1911, p. 558.
[3] *Compt. Rend. d. l. Soc. d. Biolog.*, December 16th, 1911.

epidemic poliomyelitis which occurred in the South-West of England during 1911 is able to impart the disease to monkeys. The English epidemics are thus brought into line with those from which active virus has been obtained in Austria, Germany, the United States, and France.

PELVIC HAEMORRHAGES AND ECTOPIC GESTATION.

DURING the past ten years, as we have already had occasion to observe, clinical evidence has shown that the tendency of gynaecologists to ascribe all pelvic haematoceles to rupture of an ectopic sac has been pushed to extremes, and has therefore led to error. Those same observers who at first denied the possibility of primary ovarian gestation ultimately acknowledged the ocular proof afforded by Van Tussenbroek, and they must now admit that, as was once believed very widely, pelvic haematoceles may be due to the rupture of haemorrhagic cysts of the ovary. The proof has been demonstrated by several French writers—De Rouville, Bender and Marcille, Tartanson, and Jayle—whilst Bazy has attempted to prove that severe haemorrhages may be derived from the Fallopian tubes themselves, quite independently of tubal gestation, a theory which gave rise to several discussions at meetings of the Obstetrical Society about twelve years ago.

The question is highly important in relation not only to medico-legal questions, but to obstetric science as well as to pure gynaecological pathology. A very careful report, recently published by Leriche and Blanc-Perducet of Lyons,[1] deserves therefore very careful consideration. The patient was a woman aged 43, who had been pregnant eleven times, including five miscarriages. There was a history of swelling in the left iliac fossa after the first pregnancy. In August, 1909, she underwent an operation for what, according to her account, would seem to have been early rupture of an ectopic sac, and a second, ten days later, for femoral hernia. In April, 1911, a severe attack of abdominal pain set in, when the periods were ten days overdue. The patient was admitted into hospital after about a week's delay. There was a tender mass in Douglas's pouch, simulating a retroverted fibroid uterus, and it should be noted that haemorrhage from a ruptured vein in a fibromyoma of the uterus has been observed by Herbert Spencer and others. Leriche operated and found a great quantity of clotted blood in the pelvic cavity. The uterus, which was in a condition of general fibromatous degeneration, was removed with the appendages. Convalescence was uncomplicated. There were no membranous shreds nor any other evidences of recent or old peritonitis. The Fallopian tubes were the seat of inflammation, but were permeable and free from any fetal sac, clot, or dilatation. The ovaries were distinctly enlarged and sclero-cystic. There were two small blood cysts in the left ovary—a condition not rare in late sclero-cystic degeneration. The same condition existed in the right ovary, which contained one cyst as big as a pigeon's egg, showing evidence of a recent laceration on its outer wall. Its interior contained a clot. The Fallopian tubes and the ovaries, especially the right organ at and close to the ruptured cyst, were carefully examined under the microscope, and no traces of fetal structures nor chorionic villi could be detected. The cyst was not derived from a corpus luteum, but was follicular and the result of sclero-cystic changes, which were associated, as others have noted, with fibrosis of the uterus. Thus the severe internal haemorrhage was independent of ectopic gestation or normal pregnancy.

The diagnosis of ruptured ovarian blood cyst from a ruptured tubal sac or a tubal abortion attended with free bleeding is not easy. In the case recorded by Leriche and Blanc-Perducet the patient during the ten days before the attack of acute haemorrhage suffered from dull hypogastric pains of a colicky character and began to feel weak. The periods were, we have noted, overdue. The acute symptoms subsided a little as the patient kept her bed; but fresh attacks occurred, and, let it be remembered, clot, mostly in stringy shreds, came away from the uterus. When the woman wisely applied for hospital relief and was admitted, a pelvic mass was detected, but a morbid condition of the uterus rendered this physical sign less characteristic. Still, all the usual symptoms of intermittent intraperitoneal haemorrhage due to tubal abortion were present. The stringy clot was not examined, as the case was urgent, but one distinct negative symptom was noted when the patient was placed in a hospital ward. There were no changes in the mammary glands indicating early pregnancy. Jayle collected reports of fifteen or sixteen instances of ruptured blood cyst, the more recent being without doubt genuine. In one of his own the patient was a maiden lady aged 42, and the characteristic attacks followed three successive monthly periods. Menstruation had always been regular, and exploration was difficult on account of sclerosis of the hymen. Other recorded cases are not so clear.

Any bloody discharge from the uterus requires careful examination; but although no uterine decidua can exist in these cases, that structure is not always to be found in the far more frequent cases in which tubal pregnancy is the source of the haemorrhage. It has often been passed before the patient comes under a doctor. There are also fallacies, well known to the experienced practitioner, about the appearances of the breasts. Whilst diagnosis is so uncertain there can be no doubt about treatment. When a surgeon has to deal with haemorrhage he must stop it. In a case of this kind haemostasis can be effected by opening the abdominal cavity and removing the bleeding ovary. There is seldom, if ever, much difficulty about ovariotomy under the circumstances, as the ovary is relatively small and firm adhesions are rare. Lastly, the organ removed should be placed in the hands of a competent pathologist. Then, and most likely not till then, the absence of chorionic villi and fetal relics will show that the ovary is not the seat of a primary ectopic gestation, whilst other appearances will prove the existence of sclero-cystic degeneration, involving the wall of the cyst whence the blood issued. On no account should this systematic examination for fetal relics be omitted, as the question of the possibility of pregnancy may be a matter of gravity. It is only under opposite conditions, when the internal haemorrhage is found to arise from a sac and a fetus is discovered in or outside that sac, that the microscope is not absolutely necessary for diagnosis.

In conclusion, it may be said that there can be no doubt that in relation to haemorrhage from a tubal fetal sac these bleedings from haemorrhagic ovarian cysts are exceedingly rare, but it is by no means proved that they are rarer than haemorrhage from a true ovarian fetal sac.

[1] *Annales de gynéc. et d'obstét.*, September, 1911, p. 529; see also Jayle, *Revue de gynéc. et de chirurg.*, March and April, 1908.

THE INTERPRETATION OF DIFFICULTIES.

MR. LLOYD GEORGE has contributed a preface to a book entitled *National Insurance*,[1] written by Mr. A. S. Comyns Carr and Mr. W. H. Stuart Garnett, Barristers, and Dr. J. H. Taylor, a member of the Council of the British Medical Association. The body of the book consists of a commentary, in six chapters, on the employer, the insured person, administration, the medical profession, sanatorium and maternity benefits and public health, and on finance. This is followed by a text of the Act with notes. In the commentary it is said that "The Act does not establish in any way the cost of medical benefit, and the estimate of 6s. per annum is purely speculative." In the notes on Section 15 it is pointed out that in framing the Act it was assumed that 6s. per annum would suffice, but it is argued that as, after estimating the cost of the other benefits, there is a margin of 1s. 8d. a year in the case of men and 2s. 1½d. a year in the case of women, and that the contribution assigned for sickness benefit contains a margin of not less than 10 per cent., the whole of the margin expressly assigned in the actuarial tables ought to be available for either additional benefits or for the cost of medical service; "it appears possible that 7s. for men and 7s. 6d. for women might be assigned for the cost of medical benefit without rendering the scheme insolvent." Mr. Lloyd George's preface is devoted to generalities. He says: "In the National Insurance Act it has been our aim to provide, as far as may be, for every worker some kind of shelter against the slings and arrows of fortune. In doing so we have not, I think, laid any real additional burden upon the wealth and productive ability of the nation. We have substituted for tardy relief provision made in anticipation of need, no more costly but infinitely more effective and more kindly in its operation than distress funds or the Poor Law. Some remain, for the moment, wholly or partly outside the operation of the scheme. We have not even yet been able to reach the lowest deeps, to grasp the utterly incapable, the loafer, or the wastrel, and set him, too, on the firm ground of self-respecting manhood, fit to withstand all the shocks of adversity, but we may claim to have established barriers to prevent men falling into that abyss of human despair. We have in one great measure swept into the National Insurance scheme some 10,000,000 workers hitherto unprovided for. Much remains to do, and in the coming years much may be done, but here at least is a beginning, made on a broad and comprehensive plan." He admits that in so large a measure whatever care may have been taken in the process of draftsmanship points of difficulty will arise, more especially as the Act traverses so much untrodden ground. He recommends the book as an attempt to anticipate and elucidate the difficulties.

COUNSELS' OPINION.

LAST month the *Practitioner* submitted to three counsel learned in the law the question whether under the Act the Insurance Commissioners or the Insurance Committees have power to make arrangements with medical practitioners embodying all or any and, if so, which of the six cardinal points. The counsel consulted were Sir E. Clarke, K.C., Mr. W. O. Danckwerts, K.C., and Mr. Stuart Bevan, and the opinions they gave were issued on February 1st. They do not contain anything very novel, and are chiefly of value as confirming the view as to the injurious effect of the provisions of the Act as they concern the medical profession. With regard to the income limit of £2 a week, all three counsel of course agree there is no such limit in the Act, but all three point to the provision of Section 15 (3) requiring the Insurance Commissioners to make regulations authorizing the Insurance Committee to fix a limit Sir E. Clarke and Mr. Bevan express the opinion with respect both to this and to the non-manual labourer with remuneration above £160 a year, who by Schedule 1 (Part II, *g*) would be excluded from medical benefit, that the Insurance Committee will have no power to inquire into the total income of an insured person. Sir E. Clarke writes: "I do not see how it would be practicable to enforce a limit except on the basis of the weekly wage;" and Mr. Bevan that "there is nothing in the Act itself which excludes the non-manual labourer, who in addition to a remuneration below £160, has a private income amounting to any sum whatever." As to voluntary contributors, both these counsel agree that the limit of a total income from all sources of £160 a year only applies to voluntary contributors, and only to them during the first five years of their insurance. So that there is still hope for future Governors of the Bank of England and Chancellors of the Exchequer who are now at school. As to free choice of doctor, the three counsel merely set out briefly the effect of the provisions of the Act, but none of them touch on Section (15) subsection (4) (Harmsworth amendment). The opinions on the administration of medical and maternity benefits merely set out the facts, with the exception that Sir E. Clarke thinks it "probable that the representatives of the approved societies will be at least one-half of the whole [Insurance] Committee." As to the mode of remuneration Sir E. Clarke believes that the obligation on the local Insurance Committee to consult the recognized local Medical Committee on all questions affecting the administration of medical benefits would cover the question of the method of remuneration, and he seems to think that the regulations made by the Insurance Commissioners might require the local committee to adopt a plan approved by the Medical Committee. Mr. Danckwerts is less optimistic: he merely says that the Commissioners' regulations will provide for the nature of the arrangements, and that local Medical Committees "have some power of enforcing their views and regulations may be made in regard thereto." Mr. Bevan, after pointing out that the Medical Committees are merely consultative bodies without powers to enforce their views as against the Insurance Committees, continues as follows: "It may be, however, that the regulations to be made by the Commissioners and the provision in the section that the Medical Committees may exercise such powers as may be determined by the Commissioners may result, when those regulations are made and those powers defined, in the Medical Committees having some power of enforcing their views. The Act, however, contains no guarantee that such will be the case." As to the rate of remuneration, it is agreed that this will be a matter for contractual arrangement in each case. Mr. Danckwerts adds: "Though this is so in general, I think the Commissioners' regulations to be made in conformity with Section 15 (1) as to the nature of the arrangements may more or less effect something towards conformity with this demand. It must not be forgotten that the funds available are limited." Mr. Bevan concurs, but adds: "As the Act stands there is nothing to indicate that what is considered to be adequacy of remuneration will necessarily be secured." As to the sixth point, adequate medical representation on the administrative bodies set up under the Act, the opinions merely set out the well-known facts. In a brief general opinion on the powers of the Insurance Commissioners Sir E. Clarke expresses the view that as to method and amount of remuneration the powers are sufficiently wide "to enable them to yield to the wishes of the medical profession"—an ambiguous expression which must be read with his observations under each head separately, and then seems to amount to very little, and that the administration by Insurance Committees as now constituted, and the representation on the administrative bodies being matters controlled by the express provisions

[1] *National Insurance*. By A. S. Comyns Carr, W. H. Stuart Garnett, Barristers, and J. H. Taylor, M.A., M.B., Ch.B. With a preface by the Right Hon. D. Lloyd George, M.P. London: Macmillan and Co., Ltd. 1912. (Med. 8vo. pp. 534. 6s. net.)

of the statute cannot be modified in any way. Mr. Danckwerts contents himself by expressing the view that Section 62 seems to him "to leave room for the Commissioners giving local Medical Committees effective powers in regard to many of the matters raised."

"THE PROFESSION AND THE POLITICIANS."

IN a short article under this heading which appeared in the BRITISH MEDICAL JOURNAL of January 27th, p. 206, we commented on some opinions which Mr. J. M. Robertson, M.P. for Tyneside, was reported to have expressed as to the political incapacity of doctors. As will be seen from a letter which is published at page 336, our remarks have made Mr. Robertson very angry. He evidently has the intolerance of the slightest criticism characteristic of politicians of his type. But as Disraeli said of Vernon Harcourt, his invective lacks finish. He tears his passion to tatters. He denies having said that the violent and furious opposition of doctors to the Insurance Act is due to their being mostly Tariff Reformers. If this be so he has been ill used by the local press, for we find in the *Newcastle Daily Journal* of January 16th that, speaking of doctors, he is reported to have said "the majority of them were probably Tariff Reformers, and it was on that ground, he was afraid, that they had been so ready to set up all that violent and furious opposition to the Insurance Act. If it had been a proposal to levy a tax to make the people's food and boots dearer, there would have been no meeting of doctors to protest. They would have said nothing." Mr. Robertson, as far as we have seen, has not repudiated this report. He virtually admits its substantial accuracy in the letter we publish, when he says that the majority of doctors would make no protest against a tariff which raised the price of food and manufactures for the masses. And this for what Sir Toby Belch would call the exquisite reason that the "tariffist doctor" either thinks prices would not rise or believes that he would be compensated by higher fees! He surely must give the doctors credit for knowing that if the cost of living rises it must affect them more than any other class of the people, for they are always the last to be paid, and a rise of fees would then probably lead to a greater number of bad debts. As regards the "general Toryism" of which Mr. Robertson speaks with such confidence, we repeat that he has no right to assume this as a fact; indeed in the correspondence into which his hasty generalization has forced him, he calmly owns that "naturally" his statement is "unproved" as there is no political census of doctors. We are inclined to think that the general Toryism imputed to doctors by Mr. Robertson is what our antivivisectionist friends call a "platform fact." We have no reason whatever to believe that the shouting down of Sir Victor Horsley—of which we may say in passing that it was worse than a crime, it was a blunder, besides being a gross discourtesy to a distinguished man—was inspired by political feeling. Our impression is that a large proportion, if not a majority, of the profession are indifferent in the matter of politics. Their attitude would be aptly expressed by the old lines:

> I care not a fig
> For Tory or Whig,
> But I sit in a bowl and kick round me.

The doctor's work leaves him no time for the wirepulling of political life and his training tends to disgust him with its sophistries. It is only fair to Mr. Robertson to add that, as is shown by a later speech reported in the *North Mail* of January 24th, he has found it politic to change his ground. He there attributes the opposition of the profession to "panic," and adds that he had been assured by medical friends that it was this and not Toryism which had inspired a great deal of the doctors' denunciation of the Liberal Government. Mr. Robertson seems to think that we should have given an account of the "general case" as put by him to the blameless Hyperboreans whom he was addressing. This would have been irrelevant, as we were only concerned with his attack on doctors as politicians. Moreover, our readers have had the opportunity of seeing all this "put" by men who can speak with greater authority, and it seemed superfluous to trouble them with it all over again. Regarding the 10,000 doctors, we quoted Mr. Robertson's own words, and we asked—and we once more ask—where he thinks they are to be got. We will better his instruction by suggesting that, as a preliminary to understanding, he should take the trouble to read what he is replying to. We are not concerned to defend the quality of our "fun," though, as Francis Jeffrey said in like circumstances, we might appeal to a gayer critic. We may conclude with a word of advice to Mr. Robertson. Instead of trying to make people believe that the opposition of the medical profession to the Insurance Act is political in character, he would do well to cultivate the innocence of Mr. Lloyd George, who, at the City Liberal Club on Saturday last, said that, with the exception of Mr. Shackleton, he had no notion to what party any of the English Insurance Commissioners belong, nor did he think any one else had. This pastoral simplicity somehow recalls the Dartmoor shepherd, but it is better than gratuitous denunciation of a body of men as Tories because they have not the true faith in a particular piece of Liberal legislation which a partizan with the spirit of Torquemada insists upon as necessary to political salvation.

THE TREASURY AND THE INSURANCE ACT.

THE London newspapers which are commonly looked upon as the organs of the Government—the *Daily News*, the *Daily Chronicle*, and the *Westminster Gazette*—have during the last few days contained a series of articles which are significant. The first article in the *Daily News* assumed a somewhat threatening tone and contained the accusation that the doctors were acting from political motives, or were at least allowing themselves to be used by a political party. This attitude has been to some extent modified, and even in the first article it was recognized that the estimate of 6s. per member for medical benefit is too low if a comprehensive definition is to be given to treatment. The bogey of a whole-time medical service was trotted out, but from the general tone of the articles it is to be gathered that this is not seriously contemplated, and it is now being pointed out that the question of remuneration has been left open for settlement between the Insurance Committees, or "conceivably the Commissioners," and the doctors. "It has," the *Daily Chronicle* continues, "been assumed all along that because the sum of 6s. for each insured person per annum was mentioned in the Treasury estimates to cover medical benefit this was the maximum amount available. It ought clearly to be understood that no such limit has been fixed," and we are told that the Insurance Commissioners have not been able to come to any conclusion. "Nobody," it is added, "for one moment expects that under a State scheme a great profession should be asked to work at an unremunerative rate of pay. Indeed, in the interest of everybody concerned it is most desirable that the doctors should be induced to give ungrudging service. The bulk of the money for medical benefit will be found by the approved societies. Is it not obviously in the interest of these societies that they should have the cordial co-operation of the doctors, so that attempts at malingering may be put down, and that sick members should be cured as speedily as possible? Poorly paid doctors would almost certainly mean unnecessarily heavy demands upon the sick funds." The choice which is said to lie before the general practitioner is, "Will he confer—not with the friendly societies, but with the Commissioners—or will he blindly pursue his demand for an amending Act?" We are not aware that

it has been shown that general practitioners demand an amending Act. What the report presented by the Council to the Association recommends is that the Council should be instructed to press upon the Government and the Commissioners the further conditions necessary for securing the requirements of the profession, and to notify to the Commissioners that no negotiations will be entered into with any Insurance Committee until the Representative Body is satisfied that the requirements of the profession are conceded. One of these, and not the least important, concerns the question of remuneration, and the Treasury, having assumed the sum of 6s. a year for each insured person to be sufficient—an assumption which must influence, if not wholly determine, the attitude of the friendly societies and county councils to this financial question—may well be asked through its titular head to give these bodies a lead by indicating, as may well be done without any loss of credit, that a closer examination of the circumstances has shown that a larger provision must be made if an adequate service is to be provided. The letter sent by the Insurance Commissioners on February 7th, in reply to an inquiry from the British Medical Association (SUPPLEMENT, p. 162), does not advance the matter.

SECONDARY X RAYS AND X-RAY BURNS.

No part of Sir James Mackenzie Davidson's lecture at the Royal Institution on February 2nd was of greater importance than his demonstration of the secondary *x* rays which proceed from the glass of an *x*-ray tube. These secondary rays have been the subject of investigation by physicists for years past, and it is quite possible that they are of the same nature as the secondary rays generated by the impact of primary rays upon solid matter, to which Barkla and Sadler have drawn attention. Fifteen years ago Professor Silvanus Thompson gave the name of "paracathodic rays" to the rays which followed from the reflection of the cathode ray stream and its impingement upon the glass, although at that time Professor Thompson affirmed that the cathode rays produced no *x* rays upon this second impact. But Sir James Davidson seems to have been the first to recognize the physiological importance of this secondary radiation. He believes that these secondary rays given off from the surface of the glass are mainly responsible for the dire *x*-ray burns in operators. His attention was called to the matter upon finding that the area of dermatitic trouble in his own hands ended sharply at a line corresponding to the coat cuff, for of course cloth is quite transparent to the primary *x* rays, and in his own case the adjacent parts of the skin beneath the sleeve had been equally exposed with the uncovered hand itself. The fact seemed to suggest that an agent was at work, less evidently powerful than the main *x*-ray stream, but more insidious and indeed likely to be more vitally injurious because these secondary rays are more readily absorbed than the primary ones by the skin. Sir James excellently demonstrated the existence of these rays by suspending opposite the anode of the tube from which the primary rays emerge a mass of lead through which no primary rays could penetrate; nevertheless, within the eclipsed area were shadows caused by other rays, and these rays could be traced to points of emergence on the glass of the tube. An electroscopic test proved that in the case of a "high" tube, if the action of the primary rays were taken as one, the action of the secondary rays would be one-half, and that in the case of a "low" tube, the primary again being taken as one, the secondary were represented by one-seventh. As a confirmation of the physiological action of these rays, he mentioned the fact observed by Freund, that a tube so high as to give no fluorescence on the screen would cause epilation, and that with a tube having the electric current passed in the reverse direction, so as to produce only very weak primary rays, similar results were obtained. Sir James suggested the construction of a tube which would make it possible to employ for therapeutic purposes these secondary rays alone. He added that it was only in the course of the preparation of his lecture that the physiological importance of these rays suggested itself to him. If these are actually the rays which do the damage, the belated discovery would only be comparable with that extraordinary accident by which the *x* rays themselves remained undiscovered for many years after the Crookes's tube was an accomplished fact.

HOME SCIENCE.

SANITARIANS have for years been grappling with the problem of the waste of infant life, which is all the more lamentable since it is largely due to causes that it is in our power to remove or counteract. A solution of the problem is more and more imperatively called for in proportion as the birth-rate tends to decrease. There are signs that the national conscience is becoming awakened to the blot on our civilization made by the blood of the countless victims to the ignorance of mothers, not all by any means belonging to the poorer and less educated, which is the Moloch of modern child life. Conspicuous among these signs is the recent movement for the education of women in home science, which has taken form and substance in the special school for that purpose attached to King's College. The movement owes much of its success to the active interest in it taken by Her Majesty the Queen. The "school," as we have called it, is part of the Women's Department of King's College. It is in organic relation with the London University. Besides preparation for degrees in the Faculties of Arts and Science, the department provides courses in Home Science and Economics for the King's College Certificate and the King's College Diploma. In May, 1911, some £60,000 had been privately subscribed for the furtherance of the movement for higher education in home science. An anonymous donor gave £20,000 to found an institution to be called Queen Mary's Hostel. Lord Anglesey gave an equal sum for the building and equipment of laboratories. A sum of £10,000 for the endowment of professorships and lectureships on chemistry, hygiene, and physiology was also subscribed. The origin of the movement was the desire to diffuse sound knowledge of the laws governing health, sanitation, and household economy, and especially to lessen the great loss of infant life by preventable disease. As the promoters pointed out, "the object is to foster a sounder knowledge of the laws which govern health, sanitation, and household economy. The moral and physical welfare of our country depends primarily on the training and healthy upbringing of its children. This is the special work which Nature and custom has assigned to women, and it is in directing attention to the type of education provided for girls that the true remedy lies. By ensuring that in future every girl's education shall include some knowledge of the science which affects her home problems and some practice of the domestic arts, the whole standard of home life would be raised, and trained experience substituted for instinct and tradition, which have hitherto been the chief guides for mothers." For the effective working of the scheme it was estimated that £100,000 was required. A Trust Fund Committee was formed to receive contributions. The committee was composed as follows: Lord Anglesey (chairman), Sir William Anson, M.P., Mrs. Asquith, Mr. Balfour, Lord Justice Buckley (honorary treasurer), Lady Esher, Lady Meyer, Sir Arthur Rücker, F.R.S., and Lady Rücker, and Dr. John Atkins (honorary secretary). It is now announced that the whole sum has been provided. Mention has already been made of the gifts of Lord Anglesey and the anonymous benefactor who provided the money needed for the foundation of Queen Mary's Hostel. Among the other contributors are Mrs. Wharrie, who gave a sum of

£20,000 to provide for the teaching of chemistry in memory of her father, the late Sir Henry Harben; the remaining £30,000 required was supplied by another donor. In addition to these donations mention should be made of the following: "Anonymous," £5,000; Mr. Almeric Paget, M.P., and Mrs. Almeric Paget, £1,000 each; the Duke of Devonshire, the Duke of Westminster, Lord Plymouth, Lady Wantage, and Mr. Otto Beit, £500 each; Lady Salisbury, Lady Mond, and Messrs. Rothschild and Son, £250 each; Lord Scarborough, Mrs. Alfred Morrison, and Mr. R. Nevison, £200 each; the Hon. W. F. D. Smith, Mr. Alfred Nathan, and "Anonymous," £100 each. The fund will be administered in accordance with the terms of the trust deed by an executive committee composed of representatives of the subscribers and of King's College for Women, including Lady Meyer and Lady Rücker, who were the pioneers of the scheme. Negotiations are now proceeding respecting a site for the hostel and for the new buildings of King's College for Women, in which will be incorporated the laboratories for the home science department. Every member of the medical profession and every patriotic citizen will heartily wish success to a scheme which strikes at one of the roots of the national decay, such deplorable evidence of which confronts us throughout the land.

THE CONSTITUTION OF PROTOPLASM.

THAT living protoplasm is a colloidal solution of the nature of an emulsion is the idea put forward a short time ago by Lepeschkin[1] in a preliminary paper on the structure of protoplasm. Under certain conditions this emulsion may become transformed into gelatinous foam with fluid honeycomb-like walls. Further, the colloidal parts, in which Brownian movement is exhibited, probably consist of a great variety of heterogeneous compounds. Owing to the slow movement of the colloid material chemical change in any part is not distributed immediately but tends to cause changes in the protoplasm at that particular part. These changes are evidenced by movements such as contraction of the cell or by the separation of special substances. These movements, etc., accelerate the motion of the plasma, and in this way the effect of the stimulus is eventually distributed to all parts. In addition to the cytoplasm the nuclears and other cell structures are believed to be of a similar colloidal nature. Lepeschkin maintains that all phenomena exhibited by protoplasm may be interpreted in terms of this "living plasma" theory, but it is apparent that much fuller experimental demonstration is necessary before such general conclusions can be accepted.

EDUCATION IN MIDWIFERY IN AMERICA.

IN a paper which appears in the *Journal of the American Medical Association* of January 6th, Professor Whitridge Williams of John Hopkins University gives an account of the results of an inquiry made by him with regard to the teaching of obstetrics in the United States. A schedule comprising some fifty questions was sent to the professors in the 120 medical schools giving a full four-year course. Replies were received from 43; thirty-one of these were from among the sixty-one schools which are designated as "acceptable" by the Council on Medical Education of the American Medical Association, and 11 from the 59 non-acceptable schools, not including one from Canada. The replies, says Dr. Whitridge Williams, clearly demonstrate that most of the medical schools included in his report are inadequately equipped for their work, and are each year turning loose on the community hundreds of young men whom they have failed to prepare properly for the practice of obstetrics, and whose lack of training is responsible for unnecessary deaths of many women and infants, not to speak of a much larger number more or less permanently injured by improper treatment or lack of treatment. He sums up his conclusions as follows: (1) Generally speaking, medical schools are inadequately equipped for teaching obstetrics properly, only one having an ideal clinic. (2) Many of the professors are poorly prepared for their duties, and have little conception of the obligations of a professorship. Some admit that they are not competent to perform the major obstetric operations, and consequently can be expected to do little more than train men-midwives. (3) Many of them admit that their students are not prepared to practise obstetrics on graduation, nor do they learn to do so later. (4) One-half of the answers state that ordinary practitioners lose proportionately as many women from puerperal infection as do midwives, and over three-quarters that more deaths occur each year from operations improperly performed by practitioners than from infection in the hands of midwives. It is clear that reforms are urgently needed, and Dr. Whitridge Williams suggests the following as the most important: (1) Reduction in the number of medical schools, with adequate facilities for those surviving and higher acquirements for the admission of students. (2) Insistence in university medical schools that the head of the department be a real professor whose prime object is the care of hospital patients, the proper training of assistants and students, and the advancement of knowledge, rather than to be a prosperous practitioner. (3) Recognition by medical faculties and hospitals that obstetrics is one of the fundamental branches of medicine, and that the obstetrician should not be merely a man-midwife but a scientifically trained man with a broad grasp of the subject. (4) Education of the general practitioner to realize that he is competent only to conduct normal cases of labour, and that major obstetrics is major surgery and should be undertaken only by specially trained men in control of abundant hospital facilities. (5) The requirement by State Examining Boards that every applicant for licence to practise shall submit a statement certifying that he has seen delivered and has personally examined under appropriate clinical conditions at least ten women. (6) Education of the laity—that poorly trained doctors are dangerous, that most of the ills of women result from poor obstetrics, and that poor women in fairly well conducted free hospitals usually receive better care than well-to do women in their own homes; that the remedy lies in their hands, and that competent obstetricians will be forthcoming as soon as they are demanded. (7) Extension of obstetric charities—free hospitals and out-patient services for the poor, and proper semi-charity hospital accommodations for those in moderate circumstances. (8) Greater development of visiting obstetric nurses and of helpers trained to work under them. (9) Gradual abolition of midwives in large cities and their replacement by obstetric charities. If midwives are to be educated it should be done in a broad sense and not in a makeshift way. Even then disappointment will probably follow. It may be conjectured that the answers from the large number of schools which have not replied would, if given with equal frankness, be still less satisfactory. As to Dr. Whitridge Williams's suggested reforms, however, we take leave to doubt whether they are not too drastic. We particularly demur to his statement that all difficult cases should be relegated to the care of specialists. In this country—and the same remark must apply much more forcibly to America—it would be impossible, even if it were desirable, that all cases offering any difficulties should be taken out of the hands of the general practitioner. There are many men in general practice who have records of thousands of cases, including every kind of complication, and with a minimum mortality. We think that what Dr. Whitridge Williams's facts do conclusively show is that medical education in the department of obstetrics is, on the average, very inadequate in the United States. It is, we believe, admitted by all who know the facts

[1] *Bericht. Deutsch. Bot. Gesellsch.*, 1911, p. 181.

that the preliminary training is poor—a fact which may throw a sidelight on the recent controversy as to the relative advantages of our public schools and institutions of the same kind in the United States. Even in those universities which require a degree in arts as a condition of admission to the medical faculty, the general level of culture is low as compared with the general standard of our schools. Moreover, training in many of the medical schools is scanty and narrow, and they turn out men very imperfectly equipped for the battle against disease which it will be their business to wage. There are too many schools, and many of them are run on an almost purely commercial basis. It must be noted that Dr. Whitridge Williams's strictures apply mainly to schools that have a four years' course. From this it may be inferred that the state of the other schools whose aim in regard to output would seem to be quantity rather than quality, and whose methods may be compared to sausage-making in Chicago, would show still more lamentable results.

WOMEN'S IMPERIAL HEALTH ASSOCIATION.

THE annual meeting of the Women's Imperial Health Association was held at 7, Hanover Square, W., on January 31st. Amongst those present were: Muriel Viscountess Helmsley (President), Dr. H. J. F. Simson (Vice-Chairman), and Mr. E. M. Corner, F.R.C.S. (Honorary Treasurer). The Chairman, Dr. R. Murray Leslie, in proposing the adoption of the annual report, referred to the honour conferred on the association by H.R.H. Princess Louise, Duchess of Argyll, in becoming its Patron, and alluded to the warm interest Her Royal Highness had shown in the various departments of the work. It was announced that the association had become incorporated under the Companies (Consolidation) Act, 1908 (without profits). In reviewing the work of the year Dr. Murray Leslie referred to the very successful health fête and congress held last summer. The congress was the first of the kind ever held in this country. Health caravan tours were conducted—one in Essex, Norfolk, Hertfordshire, Leicestershire, Rutland, and Bedfordshire, and the other through Hampshire, Dorset, Devonshire, and Somerset. In the villages the arrival of the caravan with its accompanying kinematograph demonstrations was hailed with delight. The work of the London Parks Caravan was well known to habitués of the parks at Battersea, Hampstead, Parliament Hill, Victoria Park, Wormwood Scrubbs, Wandsworth, Streatham, Clapham, Tooting, and Peckham Rye. Reference was made to the work done by the association in regard to the preservation of teeth of school children. In connexion with this matter it may be mentioned that the association offers prizes for the best-kept mouths, and it has been mainly instrumental in founding the British Dentists' Hospital. A model School for Mothers has been established in Lambeth. It has been proposed that the president should visit India next winter in response to representations pointing out the advantage of forming a branch of the association to promote hygiene amongst the women of that country. During the year 200 health lectures had been delivered under the auspices of the association, most of them illustrated by lantern slides and kinematograph displays, while 163,000 health leaflets and pamphlets had been distributed. A Juvenile Health League of nearly 1,000 children has been established in Romford in connexion with this association. The treasurer's report was most satisfactory; it was stated that a considerable sum was added to the reserve fund.

A PSYCHOLOGICAL COMEDY.

MR. SUTRO'S new play at the Garrick Theatre is a psychological study, touched with a light hand, of a mischievous type which is perhaps commoner than would seem to be generally supposed. At any rate, the woman—the character is generally a woman—who does evil out of a spirit of impish perversity is a type very well known to doctors, and not peculiar to any one class of society. In a lower stratum it generally goes the way of petty criminality, in a higher it saves appearances with greater or less success, at any rate for a time, but commonly does more harm, spoiling men's lives and wrecking other women's happiness. In this play the wiles of the imp are directed against a hard-working altruistic pathologist, who, on the appeal of his wife, and encouraged by the enthusiasm of his fellow-workers, determines at last to try on a child a therapeutic serum for cerebro-spinal meningitis, which for years he has been perfecting. Of the *Fire-screen* who gives the title to the play we need say nothing but that the imp is caught in her own toils—but only for a time. She extricates herself with appropriate impudence. The first scene gives a judiciously slight glimpse into the pathologist's laboratory, where every detail has been carefully studied, and a good idea is given of the austere precision and biological cleanliness of such places. The play is a comedy full of bright sayings, with several strong scenes, and admirably acted, so that the first-night audience went away amused, well pleased, and interested.

PRESENTATION TO DR. LATHAM OF CAMBRIDGE.

IT is proposed that a presentation of a suitable nature be made to Dr. Latham by the medical men of the district on his retirement from active work. He has for many years held a leading position as Physician to Addenbrooke's Hospital, as Downing Professor of Medicine, and as a consultant for a very wide area. His generosity in entertaining the members of the Cambridge and Huntingdon Branch of the British Medical Association and of the Cambridge Medical Society has ever been highly appreciated, and it is thought that the members of these two bodies would desire to express not only their personal appreciation, but also wish to ask him to accept some token expressive of the great services he has rendered to them and to their patients. It is calculated that if the members contribute a sum not exceeding 10s. each, a handsome amount will be available for the purpose. Further, it is hoped that an opportunity will be given to convene a meeting of subscribers to show the regard in which his fellow practitioners hold him. In case other medical friends, or old pupils of Dr. Latham, to whom no intimation of the proposal has been sent, desire to contribute, their subscriptions will gladly be received by one of the Honorary Secretaries, J. Alden Wright, M.D., Honorary Secretary Cambridge Medical Society, or H. Buckley Roderick, M.D., Honorary Secretary Cambridge and Huntingdon Branch British Medical Association, 19, Trumpington Street, Cambridge.

SIR GEORGE HARE PHILIPSON, President of the Newcastle College of Medicine, has been appointed by the Senate Vice-Chancellor of the Durham University.

THE officers of the Sections of Neurology and Psychological Medicine of the annual meeting of the British Medical Association at Liverpool in July next have arranged that the chief topics for discussion shall be the neuroses and psychoses of the climacteric, their prognosis and treatment, to be opened by Dr. Percy Smith, Dr. C. J. Macalister, and Dr. T. B. Grimsdale, from the standpoints of the psychiatrist, the general physician, and the gynaecologist; and the diagnosis and treatment of compression paraplegia, to be introduced by Dr. Ernest Reynolds and Sir Victor Horsley.

THE twenty-ninth annual general meeting of the Medical Sickness and Accident Society will be held at the house of the Medical Society of London, 11, Chandos Street, W., on Thursday, May 9th, at 4.30 p.m.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

WALES AND MONMOUTHSHIRE.

THE PROFESSION AND THE INSURANCE SCHEME.

THE proposal to form a Welsh Medical Committee or Council to organize and conduct future discussions as to medical benefit under the Insurance Act with the Welsh Commissioners has met with general approval in Wales. At a meeting of the South Wales and Monmouthshire Branch at Swansea on February 2nd a resolution was unanimously passed in favour of constituting for Wales and Monmouthshire a Welsh Medical Council representing both members and non-members of the British Medical Association for the purpose indicated. It was further resolved that no offer from the Welsh Commissioners should be accepted until after the Representative Meeting of the British Medical Association in London on February 20th and 21st. In consequence of the approval with which the proposal has been received it has been resolved to postpone the meeting at Shrewsbury arranged for Friday, February 9th, until Thursday, February 15th, so as to allow time for the Divisions in Wales and Monmouthshire to meet to discuss the resolutions it is proposed to submit to the Shrewsbury meeting, and to elect delegates to attend it. It has been suggested to officers of Divisions that eligible non-members should be invited to the Division meetings so as to ensure unanimity in the profession throughout Wales and Monmouthshire. The resolutions to be submitted to the Shrewsbury meeting, which will assemble at the Raven Hotel in that city at 2 p.m. on Thursday next, February 15th, will include the reaffirmation of the six cardinal principles, and the appointment of a Welsh medical committee or council, to convey to the Board of Insurance Commissioners in Wales the decisions of the medical profession. The postponement of the Shrewsbury meeting has been rendered possible by the very general approval of the course proposed to be taken, which has done away with the necessity of holding the suggested preliminary meeting on February 9th. The meeting on February 15th will, it is anticipated, be able at once to proceed to the constitution of the Committee for Wales and Monmouthshire, and the election of an Executive Committee.

LLANDUDNO FEVER HOSPITAL.

In a report to the Local Government Board in 1910 Dr. R. W. Johnstone, referring to the Llandudno Isolation Hospital, stated that the patients treated in it were attended by their own medical men, and that there was no medical officer, and no general medical supervision of the hospital. Since the date of that report there appear to have been some changes made in the administration of the institution, but from correspondence which has been appearing in the local newspapers there is still much more to be done. The principal complaints (and they are made by Dr. E. R. Woodhouse and Dr. T. L. Kenrick Davies), are that there is insufficient accommodation to receive the different infectious diseases which the rules of the hospital permit to be admitted for treatment, and that the arrangements for discharging patients is inadequate. On the other hand, Dr. E. Gooddy, as a result of his personal experience, expresses the opinion that the hospital fulfils the functions for which it was intended. The urban district council, anxious that the best should be made of existing conditions, attempt to prove statistically that it would be difficult to improve upon those conditions, and hurl reproaches at their critics. It is a pity that this attitude has been taken up by the sanitary authority, which is responsible for the well-being not only of the inhabitants of the town but of a very large number of persons who visit the locality every year, and upon whose goodwill the prosperity of the inhabitants largely depends. Unless considerable alterations have been made since Dr. Johnstone visited Llandudno in 1909, the district council would be well advised in bringing the hospital into line with modern requirements, and in this most practical and effective manner silencing their critics.

SUGGESTED HOMES FOR HARMLESS LUNATICS.

Delegates from various boards of guardians met at Carmarthen on January 27th to consider the advisability of classifying and housing the harmless lunatics and feeble-minded persons in West Wales. The general feeling was that, owing to the crowded state of lunatic asylums in Wales, many of these lunatics were kept in workhouses, where they mixed with the inmates to the detriment of all concerned. Mr. Hugh Williams, an inspector of the Local Government Board, said there were in the three counties of West Wales 212 imbeciles and feeble-minded persons and 658 lunatics. There were thirteen union workhouses and he thought that six of these could be done away with If there were fewer tramp wards there would be fewer tramps, and he advised that the three counties should unite in reducing expenditure in this direction. A committee was formed to draw up a scheme for the approval of the various boards of guardians.

MANCHESTER AND DISTRICT.

THE MANCHESTER ROYAL INFIRMARY.

THE annual report of the Board of Management of the Manchester Royal Infirmary gives special attention to the effect the National Insurance Act may be expected to have on voluntary hospitals. The board expresses its belief that there is a general consensus of opinion that the work and expenditure of hospitals will be in no way lessened by the Act, and an appeal is made to the public to continue and to increase their subscriptions "not only on the ground of the necessity to support the hospital, but also from the point of view of individual economy." The report quotes the following remarks of the Chancellor of the Exchequer in his reply to the hospital deputation:

> The hospitals of the country were essentially a part of the machinery of civilization, and he could not imagine any country allowing any single hospital to be closed. He did not wish to indicate at present what would have to be done, but he was perfectly clear in his own mind that no country could allow a hospital to be closed because it was short of cash.

In commenting on these remarks, the report continues:

> This statement obviously implies that if the hospitals are not supported voluntarily they will be supported by taxation, which would probably result in the conversion of voluntary hospitals into State hospitals. Space does not permit of a discussion of the advantages or disadvantages of such a change, and it is only possible to say that, in the opinion of the board, it would be injurious alike to the patients, the public, and the progress of medicine. It has sometimes been claimed as an advantage that if the hospitals were supported out of the taxes every person would be compelled to contribute his share, but it must be remembered that it is just as likely that the money would be raised by class taxation as by general taxation, and that the hospital tax might be raised by an addition to the income tax or to the super-tax or by the imposition of another penny upon the workman and another twopence upon the employer—an infinitely heavier burden than the voluntary contributions now made. It must also not be forgotten that these alternatives to voluntary support are a long way off, and that in the interval the hospitals have to be carried on.

The work of the infirmary shows a great increase on previous years in every department. Thus in 1911 the in-patients numbered 8,631, compared with 5,169 in 1908, while the out-patients, casualty cases, and home-patients numbered 63,949, compared with only 46,856 in 1908. The total number of persons in all departments, inclusive of the Barnes Convalescent Home, who received the benefits of the charity in 1911, totalled 74,540. The most remarkable increase was in the number of minor casualties, mostly coming under the Workmen's Compensation Act, the number reaching 22,654, as compared with 18,381 in 1910, the number of attendances for treatment by these cases being 76,733.

In the original appeal of the board to the public for funds, it was stated that after removal to the new infirmary at least £12,000 in new annual subscriptions would be required to enable the institution to pay its way, and the response had only amounted to about £3,220. There has been a further increase during 1911 of £563 in subscriptions, which still leaves such a large sum to be obtained that the board feels that it may soon be necessary to make a fresh special appeal. It is announced that the board hopes shortly to obtain possession of the old Grosvenor Street Chapel and the Roby Schools, and to erect a central

branch on the site, at an estimated cost of £45,000, including the purchase price of the land. Reference is also made to the appointment of a special medical officer to devote his whole time to the investigation into the causes and cure of cancer.

It may be noted that an additional contribution of 1d. from insured persons and 2d. from employers would bring in about £9,000,000, whereas the memorial presented to the Government on behalf of the voluntary hospitals of Great Britain and Ireland stated that "the voluntary hospitals of the kingdom are at present supplying this need (medical and surgical attendance for the working classes) at an annual cost of nearly £4,000,000, exclusive of interest on the original cost of the hospital buildings." It is evident that the Infirmary Board believes that the cost of State hospitals would be enormously greater than the cost of the voluntary hospitals.

THE MANCHESTER ROYAL EYE HOSPITAL.

An arrangement has been made between the Manchester Royal Eye Hospital and the University of Manchester for the appointment of a laboratory steward to the hospital, who will work under the supervision of the Professor of Pathology of the University. This arrangement is intended to facilitate the examination of pathological specimens in connexion with diseases of the eye as treated at the hospital, and it is hoped that progress may be made in the preparation of serums and vaccines for use in the treatment of such diseases. It is agreed that Professor J. Lorrain Smith, as the Professor of Pathology, shall be appointed Honorary Pathologist to the hospital with a seat on the Medical Board. The annual report of the hospital shows that the number of patients treated during 1911 was greatly in excess of any previous year. The out-patients admitted at Oxford Road were 25,222, an increase of 3,155, and at St. John Street 14,037, an increase of 1,262. The in-patients admitted at Oxford Road numbered 2,008, an increase of 21, the average stay in hospital being just over twenty days. The number of accident cases treated at the two hospitals was 9,350, which is an average of about 29 per day. The ordinary expenditure for the year exceeds the ordinary income by £544, which has made it again necessary to encroach on legacies and other moneys which ought to be invested as capital. The report states that unless the subscription list can be increased, the furnishing of new wards, for which there is ample accommodation in the enlarged hospital, will have to be indefinitely postponed, although the number of persons waiting for admission as in-patients makes increased accommodation a matter of some urgency.

In moving the adoption of the annual report Mr. P. W. Kessler said that a certain amount of the increased work was due to the education authorities taking up the question of the eyesight of school children, and the education that the people were receiving through this action was making them see the necessity of coming to the hospital sooner than they used. The Insurance Act might lead to a certain amount of loss in subscriptions from employers and employed, especially the former. The out-patient department might be relieved to some extent, but there was likely to be an increase in the work of the in-patient department. A great deal was being done to make hospitals receive something for the work they would do under the Act, and this might lead in the future to the hospitals being run by the insurance authority. He would be sorry to see that happen, but at present they were in the dark, and it would be a year or two before they could know what was to happen to them.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

SCOTTISH MEDICAL INSURANCE COUNCIL.

THE temporary Executive Committee of the Scottish Medical Insurance Council has issued the following circular letter:

Since the National Insurance Bill passed through both Houses of Parliament and became law there has been much agitation, and a feeling of uncertainty and insecurity as regards the future of the medical profession. As separate Commissioners have been appointed to administer the Act in Scotland the Scottish Committee of the British Medical Association has been taking steps to have power given to it to act independently of the Central Council of the Association in all matters connected with the National Insurance Act as it affects Scotland. In view of these developments the committee has been desirous of being strengthened so as to make it fully representative of all the medical interests in Scotland.

At the same time the medical corporations in Scotland have been actively considering in what way they could help the profession in Scotland.

The outcome of many consultations and conferences was that the medical corporations issued invitations to the Scottish Committee of the British Medical Association and to the Scottish universities to meet them in conference to consider the feasibility of taking joint action, instead of the Scottish Committee and the corporations taking separate action.

The proposal to hold such a conference was cordially responded to by the universities and by the Scottish Committee of the Association. Representatives from Edinburgh, Aberdeen, and Glasgow Universities attended, and although St. Andrews could not arrange for representatives to this special meeting, it has since then intimated that it has nominated members of the medical faculty to attend any further conferences.

The conference was held on Saturday, January 20th, in the hall of the Royal College of Surgeons of Edinburgh.

After an interchange of views, and some discussion, it was found that any differences of view mainly affected matters of detail, and that the conference was agreed as to the desirability of *joint action* as against separate and inco-ordinate action on the part of the bodies represented.

The next question which had to be considered was—*What action should be taken?*

Again, after a free interchange of opinion, it was determined that a body should be formed which should consist of (1) representative practitioners from the insurance areas; (2) the members of the Scottish Committee of the British Medical Association; (3) representatives from the three medical corporations; and (4) representatives from the universities. It was further decided to take steps for the selection of representatives from the insurance areas without delay, and that every member of the profession, whether a member of the British Medical Association or not, should have a vote in this election, and should be eligible as a representative of his own area.

It was decided that the most suitable means of selecting representatives would be to have nominations, signed by two practitioners, sent in from the various areas to the Secretary of the British Medical Association Division in which the area is situated; that thereafter voting papers be sent out to the practitioners in the areas with the names of those who have been proposed as suitable to represent the area. As soon as the postal voting papers are returned the representatives elected will be called together to meet with the Scottish Committee and with representatives from the medical corporations and the universities, which together will form the Scottish Medical Insurance Council. When the Scottish Medical Insurance Council meets it will decide upon the policy to be adopted, and will appoint a representative Executive Committee to carry out whatever resolutions may be arrived at.

Matters arising out of the National Insurance Act will be defined and considered, and it is hoped that the representatives selected by the areas will be able to give definite information as to the views held in their areas.

As the insurance areas are practically the administrative units under the Act, it is hoped that every practitioner will actively help the Division Secretary—first, in seeing to nominations being made, and secondly, in seeing that the voting papers are returned by every practitioner in his area.

It is further hoped that arrangements will be made to provide the railway fares of those attending the Council and Executive Meetings.

The Scottish Medical Insurance Council, thus constituted, should consolidate medical opinion and action in Scotland, should be able to ascertain the special requirements of different localities, and authoritatively bring them to the notice of the Insurance Commissioners; while the individual practitioner will have the Scottish Medical Insurance Council to advise him in all matters of difficulty and doubt.

Temporary Executive Committee.

RALPH STOCKMAN, *University of Glasgow.*
WILLIAM RUSSELL, *Royal College of Physicians.*
R. MCKENZIE JOHNSTON, *Royal College of Surgeons.*
MICHAEL DEWAR, *Chairman, Scot. Com., B.M.A.*

DUNFERMLINE DOCTORS AND THE INSURANCE ACT.

Medical practitioners in Dunfermline are determined not to work under the Insurance Act unless their terms are conceded in the regulations framed by the Commissioners. In view of the passing of the Act, they are increasing their terms for medical attendance upon members of friendly and other societies in the city. Last week delegates of the friendly societies met the doctors with a view to endeavouring to persuade them to revert to the old rates, but the medical men refused to move. The friendly societies then met to hear the report from their deputation. It is thought

probable that the friendly societies will accept the proposal of the doctors that all contracts cease in March in the event of their increased terms not being accepted. This action of the medical men in Dunfermline seems to be worthy of the attention of those in other towns who find themselves in similar positions.

Vagrancy and Insanity.

Dr. Douglas McRae, Medical Superintendent of Ayr District Asylum, in his annual report for 1911, gives statistics for the three decennial periods, from 1881 to 1911, which he claims show that the occurring insanity in relation to the numbers of the general population, is not even relatively increasing, but is actually decreasing. The available accommodation is, he says, "to a decided extent taken up by individuals who formerly were allowed to roam unattended, because considered harmless and comparatively inoffensive. The aged and broken down are much more readily placed under institutional care than in the days when such were regarded as more or less a legitimate domestic burden, whose care was a pious duty. The 'village idiot' or the 'senile dotard,' indeed, every kind of mental cripple is deemed an incubus at home, and the proper subject for asylum care nowadays." He states that it is probable that the improved hygienic conditions of modern civilization combined with the relatively smaller amount of alcoholism among women "are the most important factors in their decreasing liability to certifiable insanity. These views, moreover, support the belief that a systematic suppression of vagrancy and inebriety by compulsory State detention in self-supporting colonies would go far to reduce the amount of mental disease occurring in the general community, and considerably add to the sum of human happiness."

Insanitary Conditions in Relation to Consumption.

In a lecture delivered under the auspices of the Edinburgh Sanitary Society Mr. W. Kelso, the Chief Sanitary Inspector, Paisley, pointed out that since the commencement of the crusade against consumption, and notwithstanding all that had been said and reiterated about proper conditions of living, fresh air, and good wholesome food for the treatment and cure of the disease, it did not yet appear to be realized that these conditions were as important for its prevention. An investigation made in Paisley a few years ago showed that one and two apartment-houses constituted 72 per cent. of the total houses in the town, and that 80 per cent of the deaths from consumption took place in them. Whether mainly due to the small houses and vitiated air, to occupational influences, to habits and conditions of living, or one or all of these conditions combined, it showed an excess of 8 per cent. of deaths from consumption in these small and often overcrowded houses. An energetic crusade was much required to close many of the old damp and insanitary houses all over the country. Street improvements and street widening operations had the effect of clearing away old insanitary properties, and the new ones were somewhat more in keeping with sanitary ideals, although many of them still contained the boxed-in or press bed, but of a worse type than the old ones, because provided with doors. Observations made some time ago disclosed the fact that about midnight only about 16 per cent. of the windows were open, and during the daytime the highest number found open was about 50 per cent. The Housing and Town Planning Act, 1909, if properly used, was destined to go a long way in preventing the perpetration of worse buildings and planning blunders in the future. The annual loss to the nation from consumption alone was estimated to be not less than £10,000,000, made up from loss of life, loss of wages, loss to friendly societies, Poor Law institutions, charitable institutions, and private charities. It was because of the great loss, and the suffering entailed throughout the country, that one and a half millions of money had been set aside by Parliament, and provision made in the Insurance Act for another million being spent annually, for the treatment and prevention of consumption, the latter of course holding out the best hope of eradicating the disease.

Leanchoil Hospital, Forres.

The report submitted to the annual meeting of the governors of the Forres Hospital held on January 31st showed that the funds at December 31st amounted to £6,995 14s. 11d., the largeness of the surplus being accounted for by the legacy of the late Mr. Thomas Murdoch, Chicago. The patients treated in the medical and surgical wards numbered 119 during the year. In the infectious diseases hospital the number of patients being treated on December 31st, 1910, was 10. The number admitted during 1911 was 23.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Reception at the College of Surgeons, Dublin.

A reception given on January 27th by the President of the College and Mrs. Woods to meet the Lord Lieutenant and the Countess of Aberdeen was very largely attended, not only by medical men but also by members of other professions. In the council room and in the anteroom of the Examination Hall Professor J. Alfred Scott and Mr. A. H. White had brought together an interesting collection of microscopical and other scientific exhibits, including bacilli of various diseases, and the ova of trout six days old, showing the circulation. There was also a cinematograph exhibition demonstrating bacilli and growth of plant life. Sir Charles Cameron had an exhibit of food and its adulterants, and the lower part of the College museum was also open to the public. It is many years since the college has been thrown open in this way to an evening reception of the lay public.

Women's National Health Association and the Insurance Act.

The new Irish Health Insurance Society is still a subject of considerable interest both to the medical profession and the general public. A letter appeared in the daily press last week pointing out that, as in England and elsewhere, working-class women coming under the Act will naturally be expected to insure with societies to which their menkind already belong or which are canvassing for more members, but that practically all such Irish societies are strongly political, sectarian, or trade unionist, there will be keen competition between them to get all possible "good lives," leaving the "bad lives" to the Post Office; if, therefore, zealous but inexperienced Women's National Health Association workers try to compete for "good lives" they will instantly be treated to a system of boycotting and will be said to be trying to undermine the Nationalist principles of the women workers of Ireland. All along it has been recognized that there is a great danger of the Women's National Health Association becoming tainted or, what is just as bad, thought to be tainted with politics, which would at once handicap very largely the good work this organization is undoubtedly doing throughout the country. A special meeting of the Enniskillen branch of the Women's National Health Association was held on January 31st to consider the matter. Mr. A. Irwin, LL.D., explained the working of the Act, and Mrs. Archdale (who was in the chair) said that she would not like to advise anyone to join the proposed Irish Health Society until she was in a position to state the advantages it presented over other societies. With one dissentient, the committee decided not to undertake as a branch the working up of the Irish Health Insurance Society.

Health and Housing Exhibition, Cork.

The Health and Housing Exhibition, under the auspices of the Women's National Health Association, was opened to the public in the City Hall, Cork, during the third week in January. Her Excellency the Countess of Aberdeen opened the exhibition in person before a large and representative audience. Exhibitions of this sort help to bring home in an eminently forcible way a great deal of valuable knowledge connected with the physical well-being of the people. As indicating the scope of the enterprise it is sufficient to say that the display in the City Hall was the most comprehensive of its kind yet organized outside Dublin. A very large food section formed an important part of the exhibition. It showed by diagrams, specimens, etc., the relative value and proportions of fats, proteins, sugar, and water in different foods. The nursing section dealt with a very important interest in the work of the

association, and the town planning section was replete with models and exhibits of the most approved styles of cottages and dwellings for the poor. Lectures were delivered daily by doctors, engineers, and architects, who, with the organizing secretary of the association, explained the exhibits to groups of persons interested.

CORK JOINT HOSPITAL BOARD.

The first annual report of the working of the sanatorium was read at the quarterly meeting of the board on February 3rd. Dr. Ahern, R.M.S., stated that 131 men and 88 women were admitted during the year, and that 40 were still undergoing treatment at the end of the year and were not included in the statistics. That left 179 patients, 109 men and 70 women, who had been admitted and discharged—20 were paying patients who came from Cork 12, Kerry 6, Limerick 1, and Tipperary 1. Of the patients in the early stage of the disease 65 per cent. left the sanatorium with the disease completely arrested—namely, with completely healed lungs, and the condition of 32.5 per cent. of them "very much improved"—namely, their general health and full working capacity was completely restored, although the lungs were not quite healed. In other wards 97.5 per cent. of the early cases were greatly benefited. Of the moderately advanced cases, 60.3 per cent. of them were very greatly benefited, and had their full working capacity restored, and 20.7 per cent. were able to perform light work. The number of beds in the sanatorium was 77, and the average number of beds occupied daily was 45. Admission had been refused to 135 hopeless cases. If the disease was to be eradicated, Dr. Ahern urged the following chain of agents: (1) Compulsory notification; (2) tuberculous dispensaries similar to that recently opened in Dublin; (3) hospitals for advanced cases; (4) farm colonies for those who have left the sanatorium, and for whom carefully-selected and supervised employment was desirable.

CARRICK-ON-SUIR WATER SUPPLY.

A protracted inquiry was recently concluded, before Mr. P. C. Cowan, Chief Engineering Inspector, Local Government Board, regarding a scheme for a water supply for the town of Carrick-on-Suir at an estimated cost of £9,000. The project was strongly opposed by residents in the Carrickbeg district of the town, who allege that as they are on the other side of the river from the town proper, and have an ample water supply, they should not be included in the area of charge. Mr. Errington, Town Clerk, stated that the scheme would involve a rate of 2s. 2d. in the pound, but he calculated that there would be a large reduction in the rate, owing to the water rents from private houses, railways, manufacturers, etc. When the inspector had explained how the ratepayers in the Carrickbeg district would be affected, a large part of the opposition dropped, and a vote of thanks was unanimously accorded him at the close of the inquiry.

TYPHUS FEVER.

Dr. Browne, Local Government Board Inspector, has drawn the attention of the urban council of New Ross to the urgent necessity of having the town properly cleansed in view of an outbreak of typhus fever on the border line of the district. At a meeting last week the medical officer, Dr. W. O'Connor, stated that as there was much communication between the Mauchlins, where the epidemic has occurred, and the town, measures should be taken at once to prevent the disease from spreading. Every effort should be made to improve the sanitary state of the town, which he stated was by no means good. The meeting decided to take practical steps to give effect to the recommendations for cleaning the town.

INMATE NURSES.

In consequence of an inquiry held recently at the South Dublin Union regarding a charge against an inmate nurse and porter who were sent with the ambulance to a place several miles from Dublin to fetch a patient so ill that she died two days afterwards, a member of the Irish Nurses' Association has written a very pertinent letter to the *Irish Times* asking for the exact meaning of the term "inmate nurse," and inquiring what training this person possessed to qualify her to take charge of a patient in such a grave condition. The writer concludes the letter as follows: "Surely it is high time now that things should be called by their right name, and that the term 'nurse' (when in attendance on the sick) should be a State-registered title, only to be used by those who are qualified to bear it?"

WEXFORD DISPENSARY DOCTORS' SALARIES.

At the Wexford Board of Guardians, it was decided to adopt a revised scale of salaries for dispensary medical officers in the Wexford Union. Triennial increments of £7 10s. were granted, the salary in Wexford Urban District to reach a maximum of £175 and in the other dispensary districts £150. It was also unanimously decided to make the scale retrospective.

FORSTER GREEN HOSPITAL FOR CONSUMPTION.

The sixteenth annual meeting of the Forster Green Hospital for Consumption took place in Belfast on January 31st; the President, Mr. Herbert Ewart, occupied the chair. Dr. Houston, honorary secretary of the medical staff, presented the medical report: A total of 346 patients were treated in the wards; the 277 patients discharged during the year were classified on admission as follows: Incipient 98, advanced 159, far advanced 14, other diseases 6; on discharge, in 26 the disease was arrested, in 61 greatly improved, in 111 improved, in 68 not improved, and 5 died in hospital. The limit of three months for Corporation patients is too short for cases that are improving, and relapses were discovered in some on return home. The "work" treatment was being carried out with benefit. In the out-patient department 965 new cases were seen.

India.

[FROM OUR SPECIAL CORRESPONDENT.]

ST. JOHN AMBULANCE BRIGADE.

MAJOR R. J. BLACKHAM, R.A.M.C., was Commandant of a Coronation Durbar Contingent of the St. John Ambulance Brigade, consisting of nearly one hundred of all ranks which served at Delhi throughout the Durbar period—that is, nearly a fortnight. The Contingent was well equipped in every respect, and had the following transport establishment, namely: 3 transport carts, 15 ambulance carts, 36 transport ponies and 30 riding ponies, specially provided for the occasion by His Highness the Maharaja of Jaipur. The men of the Contingent were officially recognized by the Durbar Authorities, and were attached to the Civil Ambulances under the Command of Colonel Bamber, C.V.O., I.M.S. They rendered valuable services to many hundred cases, and were fortunate enough to be on the scene at the only two serious accidents which occurred in the immediate vicinity of Their Majesties. This is the first occasion on which voluntary ambulance workers have been officially employed in India. His Majesty the King-Emperor has been pleased to bestow the Coronation Durbar Medal on Major Blackham, in recognition of special services at the Coronation Durbar at Delhi.

Sydney.

[FROM OUR SPECIAL CORRESPONDENT.]

CONTROL OF THE PUBLIC HOSPITALS.

THE attitude of the Government towards the question of the control of the large public hospitals is still uncertain, and, judging from the utterances of the Ministers, the Cabinet is not united on this point. A short time ago the Acting Minister of Education made a significant declaration of the Government policy. He said that the hospitals should be under Government control, and he went on to express the hope of seeing this state of affairs soon brought about. The drift of the Government policy has been to increase Government control, and in some cases where grants have been made to institutions, the Government has stipulated for fuller representation of its interests in administering the funds. In at least one instance the Government has appointed a special repre-

sentative to the Board of Management, and the general tendency has been for the institutions to pass absolutely into the hands of the Government. The straight-out declaration of the Minister of Education might be literally interpreted to mean that the Government were about to nationalize the hospitals. But in reply to a question put to him in the Legislative Assembly a few days ago, the Premier, Mr. McGowan, said that he was not aware of the statement of the Minister of Education that it was the intention of the Government to nationalize the hospitals, but he did know that the subsidies to the hospitals were increasing every year, and that the work done by the hospitals is of such importance that no Government can allow them to stop. Personally, he held the opinion that the subscriptions made to these hospitals have not been increased in the same ratio as the work done by them. He thought that the members of the community were ever so much better for subscribing to the work, and as an individual in the collective body he wanted to encourage the public to continue their subscriptions. As far as the Government was concerned, the view they took was that the work of the hospitals must not be impaired, and they must be allowed to continue on their present lines.

In view of the attitude of the Government, a significant step has been taken by the directors of the Women's Hospital in Crown Street, Sydney. Some time ago the Government announced that as it had a financial responsibility to meet in connexion with the hospitals it subsidized, it is intended to have more direct participation in the administration of them. Accordingly the board of directors of this hospital have decided to make provision for representatives of the Government to have seats on the board, and a special meeting is being convened for the purpose of amending the by-laws to give effect to this proposal.

The Compulsory Notification of Pulmonary Consumption.

In the annual report of the Sydney town clerk, reference is made to the compulsory notification of pulmonary consumption in the city and its good results. In the year 1900 the necessary powers were obtained by the council on the strong representations of the city health officer and the town clerk, to make phthisis a notifiable disease within the city. Sydney is unique in this respect in New South Wales, and the end has certainly justified the means in this instance; none of the untoward results prophesied have come to pass. In 158 cases the patient was visited by responsible officers under the direction of the city health officer, and each of these patients was carefully instructed how to deal with the expectoration and otherwise how to conduct himself so as not to be a source of danger to others. In cases where the circumstances rendered it necessary for the patient to be removed to the Hospital for Consumptives every assistance was given him, and in many cases consumptive persons were strongly urged to avail themselves of hospital treatment, and were eventually persuaded to do so. In case of the removal or death of the notified person the premises previously occupied by him were always disinfected by the trained staff of the sanitary department. Disinfection was carried out in 150 cases, 69 dwellings being disinfected after death, and 81 after the removal from them of a consumptive patient. The agenda of the Annual Conference of the Political Labour League contains a resolution to be proposed:

> That the Ministry be requested, in the interest of the public health, to use the power they possess to proclaim consumption a notifiable disease throughout the State as well as the city corporation area; or, if necessary, a law be passed through Parliament to enable the Minister to place tuberculosis of the lungs on the same footing with regard to notification as typhoid, diphtheria, plague, leprosy, scarlet fever, etc.

The fact that great benefits accrue to the sufferer and the public through the notification of consumption in the city area, and that no hardships result, ought long ago to have influenced the Minister to proclaim this disease notifiable.

Labour and Public Health.

The agenda paper of the same conference contains other proposals in regard to public health. A State health department under a responsible Minister of the Crown is advocated, and for administrative purposes it is proposed that the State shall be divided into health districts, and in each district there is to be a complete medical and surgical staff with all up-to-date appliances. The object of this seems to be that the best medical and surgical and nursing skill shall be made available to the people of the remotest corners of the State. This is an extension of the Countess of Dudley's bush nursing scheme, for it provides medical attendance, instruments and appliances, as well as nursing to the people in the back blocks. This appears to be in reality a means of introducing the nationalization of the profession.

Cremation in New South Wales.

A sum of £5,000 for the establishment of a crematorium was placed upon the Estimates of public expenditure, but when the Estimates were revised previous to being submitted to Parliament this amount was struck off. As the adherents of cremation have for a long time been anxious to establish a crematorium in Sydney, a deputation from the Cremation Society of New South Wales recently waited upon the Premier to ask that the sum of £5,000 should be placed again on the Estimates for the purpose of meeting the expense of erecting a crematorium in Sydney. Dr. Foreman, the president of the Cremation Society of New South Wales, said that in all the large centres of Europe and America crematoriums were established and were being increasingly used. It was earth burial and not cremation that concealed crime. When a person desired a relative cremated two medical certificates were necessary and a *post-mortem* examination was held, so that a crime would thus be immediately detected. The society asked for £5,000 to build a chapel and a crematorium. There should be no religious objection to it, as the injunction "ashes to ashes" was only possible by cremation. Other speakers having urged the application, the Premier, in reply, stated that personally he was in favour of cremation. His colleagues had placed £5,000 on the draft estimates, but it had to be struck off, as they had to keep the Estimates as low as possible. He would, however, reopen the question before the next Estimates were drafted, and they in turn would have to answer the objections that were made as to cremation being an incentive to crime, and costly. Personally he was as thoroughly convinced as they were; he had no sentimental scruples, and believed in taking the best means to preserve the living.

Dinner to the President of the late Congress.

A dinner was tendered to Dr. Antill Pockley, President of the Ninth Session of the Australasian Congress, by some of his medical colleagues at the University Club, at Sydney, on November 30th. Sir Philip Sydney Jones occupied the chair. After the toast of His Majesty the King, Dr. S. H. MacCulloch, the Honorary Treasurer of the Congress, proposed the health of "Our Guest," who had so well conducted the business of the congress, and with the valuable assistance of his wife had done so much to make the congress the most successful from every point of view that had ever been held in Australia. Sir Philip Sydney Jones, before asking Dr. Pockley to reply, said that he had the pleasant task of presenting to Dr. Pockley a silver centrepiece and candelabra as a memento of his presidency of the Ninth Congress. They desired to give him something of a permanent character whereby he would be enabled to remember the work he had so ably carried through, and on behalf of the company he presented him with this token of esteem and regard from his brother practitioners. Dr. Pockley, in reply, expressed his sincere thanks for all the good wishes uttered by the previous speakers, and the proofs of the goodwill of his fellow practitioners. The presidency of the congress was no sinecure, and, while he had done his best to make the late congress a success, he realized that but a small part of the success was to be attributed to his efforts, for "no president," he said, "had had so willing and so able a set of officials as he had behind him."

Dr. A. J. Brady, who proposed the health of the Chairman, said it was a great pleasure to have Sir Philip Sydney Jones presiding over their gathering. He was the President of the First Congress held in Sydney nineteen years ago. He was a distinguished member of their profession, and one whom they all honoured and respected as a public-spirited man. Sir Philip Sydney Jones, in

reply, expressed his most sincere thanks for the honour done him in asking him to preside. He would like to say that with his advancing years he had not mixed much with his professional brethren, but he was nowhere so happy as when he found himself in the company of members of his profession. After the health of the General Secretary (Dr. A. A. Palmer) had been enthusiastically drunk the company dispersed.

Special Correspondence.

VIENNA.

Dispute between the "Medical Organization" and the "First Aid Association" of Vienna.—Social Position of Military Doctors.

VIENNA is at present following with great interest the course of a dispute between the "Medical Organization" and that most useful institution, the Viennese "Rettungsgesellschaft" or "First Aid Association," which latter body, by the way, has but recently celebrated its thirtieth anniversary, when it received numerous tokens of appreciation from its many friends and sympathizers. It is now some time since the organization, which comprises about 90 per cent. of the medical practitioners of Vienna, took upon itself the task of settling the differences of the "Rettungsgesellschaft" with its medical staff. These, in the first instance, arose from the demand of the doctors for a sliding scale of fees and a retiring pension for such among them as had held permanent appointments as officials under the association. As hitherto the management of the association—a private body supported entirely be voluntary contributions—had been in the hands of private individuals, certain other securities were also asked for and refused by the managing board. In consequence of this refusal, considerable friction has arisen between the association and the medical organization with regard to the appointment of doctors, the organization having been called in to act as mediator by the medical staff of the association. The dispute has unfortunately been made public through an action brought against a member wrongfully accused of unprofessional conduct by his own chief, the director of the association. The sympathies of the public at once went out to the defender, and the association has become extremely unpopular. At the present moment every effort is being made by the different medical associations to bring about an honourable compromise and prevent the threatened boycott of the "First Aid" by the entire profession, a measure which could not fail to have a disastrous effect upon life in the capital. Popular feeling runs so high in Vienna that even the labouring classes understand the position of the doctors and are in entire agreement with the policy of the organization.

The social position of medical officers in the Austrian army has, for many years past left much to be desired. The exclusion of military doctors from certain privileges, such as admission to court functions, to personal service near the Emperor, or to regimental honours, was no doubt in many instances due to racial or religious prejudices, for a large percentage of doctors in the Austrian army are—or were—of Jewish parentage. But the career of an army doctor was, in any case, a very poor one. No account was taken of individual merit, and few reached the position of staff surgeon, and that only after a service of at least twenty-two years. This antiquated system, which reduced all and sundry to the same dead level of mediocrity, is now to be revolutionized; and a welcome change may be observed in the attitude of the upper classes, both military and civil, towards the medical profession. Army doctors can now take part in all court functions provided they are in uniform; and under the new régime a regimental surgeon must appear at every court of honour. Moreover, in future, the doctor may apply for promotion after ten years' medical service or fifteen years' military service; and it is to be hoped that those concessions, combined with an increase of 12 per cent. in the pay, will induce more men to enter the army than has hitherto been the case, and so fill those gaps in the medical corps which are so much to be deplored at the present moment.

Correspondence.

THE NATIONAL INSURANCE ACT AND CONSUMPTION.

SIR,—One of the most important matters that must soon occupy the attention of the Insurance Commissioners is to decide in what manner the funds which will be available under the Act for the cure and prevention of consumption shall be expended. In order that the greatest amount of good may be secured from this expenditure it is necessary in the first place that careful consideration should be devoted to drawing up a definite plan of campaign—further, whatever plan may be adopted there are at least two conditions with which it should comply:

(*a*) There should be reasonable grounds, based on the results of experience, for presuming that it is capable of solving the consumption problem.

(*b*) Its cost must be such that it is practicable to put it into operation generally over the whole of the country.

Doubtless many opinions will be advanced and many methods of procedure suggested, and eventually it may be found possible to evolve a system comprising the best features of several methods. In the meantime it may be of service to give a brief account of a system for the municipal control of tuberculosis that has been in operation in Portsmouth since last June, a system which not only promises to be successful, but which, so far as expense goes, is readily capable of being applied to the whole country.

The centre of the attack against consumption in Portsmouth is the municipal tuberculin dispensary, of which Dr. Hilda Clark, late of the Street Tuberculin Dispensary, is the medical officer; there are also provided a hospital, open-air shelters, fully-trained nurse visitors, and a voluntary Care Committee, all organized and co-operating with the Public Health Department.

The Care Committee is composed of representatives from the Health Committee, the board of guardians, and from every charitable and social organization in the borough; these include the Charity Organization Society, the Personal Service League, the Soldiers' and Sailors' Families' Aid Society, and various local, parish, and Church relief societies. The President is the mayor for the time being, and the Chairman of the administrative committee is the medical officer of health. The Committee meets fortnightly at the dispensary, when the medical officer to the dispensary brings forward the names of any cases attending who require help in some form or other to enable them to benefit to the fullest extent from the treatment they are receiving. This assistance may take the form of milk, food, clothes, maintenance during a short period of rest, change of air, temporary assistance in the housework when the patient is the mother of a large family, or the securing of more suitable work, or securing better sleeping accommodation, etc. The patient, whatever his particular need may be, is allotted to an individual member of the Care Committee, whose business it is to see that, if possible, the assistance required is provided. As all the charities in the town have been linked up to the Care Committee, it is usually found that one of these, through its representative, is able and willing to do all that is required. The work of the Care Committee has been invaluable in enabling patients to undergo treatment at the dispensary whom otherwise it would have been impossible to treat.

The basis of the municipal system is the treatment by tuberculin at the dispensary on the intensive system advocated by Dr. Camac Wilkinson. This system was adopted by the town council in preference to providing a sanatorium because it was felt that the results of sanatorium treatment amongst members of the working classes had proved unsatisfactory; moreover, the expense of construction and maintenance of a sanatorium capable of dealing with all the consumptives in the borough was prohibitive. It was felt, further, that a fatal obstacle to the success of sanatorium treatment was the fact that as it necessitated working men giving up their work and means of livelihood, they habitually put off applying for sanatorium treatment until the disease had advanced beyond the stage when a fair chance of recovery remained. Now, in the case of consumption, it will be readily admitted that the treat-

ment that will prove the most successful, other things being equal, is the one by means of which one is able to secure the patients for treatment in the early stage of the disease. The dispensary system secures this object, and a large proportion of the patients now attending the dispensary at Portsmouth are doing full work all the time. Ninety of the patients who applied for treatment between the months of June and December last year were engaged in work outside their homes. Of these, 40 were at work when they applied, and have continued at work ever since during their course of treatment. Five, although at work, were unfit to do it, and of these, 4 were induced to give it up temporarily, 2 having since been enabled to return to work. Out of the 45 who were too ill to work at the time of applying, 19 have returned to full work, 3 are doing part work, and 4 are fit for work, but have not yet been able to secure a job.

Up to the present the results we have obtained at the dispensary have been strikingly successful. In making this statement I think I shall be borne out, if need be, by many medical officers of health and representatives from other local authorities who have visited the dispensary and examined the patients and their medical history sheets. As the dispensary has not yet been in operation for a year I am not in the position to claim that the apparent cures we have obtained will be permanent; several years must elapse before any such claim can be substantiated. I can say, however, that everything points to its proving a great success, and certainly the Municipal Tuberculin Dispensary has firmly established itself in the confidence of the working classes of Portsmouth, and this feeling of confidence is solely due to the benefit the patients have themselves derived from the treatment.

Were it not for the fact that large sums of money will shortly be available for the treatment and cure of consumption I should not presume after so short a trial to advocate the system we are now practising; my sole object in so doing is to call attention to a scheme which at the least is well worth the careful consideration of those responsible for the administration of the National Insurance Act funds. What is possible in Portsmouth is possible in other places; the population of this town is 236,000; the cost of our system as at present carried on is under £2,500 per annum; extended sufficiently to deal with all the consumptives entitled to benefit under the Act it will in all probability not exceed £4,000. That is to say, the cost of applying this scheme to the whole of the population of the country at the same rate would not amount to more than a million pounds sterling per annum, the amount that is estimated will be available under the National Insurance Act.—I am, etc.,

A. MEARNS FRASER, M.D.,
Portsmouth, Jan. 30th. Medical Officer of Health.

SIR JAMES BARR AND THE INSURANCE ACT.

SIR,—Dr. Frederick Porter is hard to please and still harder to follow. I gather from his letter in the JOURNAL of February 3rd that he is not very certain as to the symptoms of national degeneracy. If the "strikingly visible wellbeing of the working classes in Germany" is no proof against national degeneracy, then one may take it that the strikingly visible masses of dirt, squalor, misery, and poverty in our industrial cities and towns are not proofs against national progress, elevation, and strength. Few—even opponents of the Insurance Act—will agree to this.

The whole point of my letter of January 27th was that Dr. Shadwell was not a tourist of the impressionist type, but a medical investigator with a scientific mission to study social facts and draw unbiassed conclusions. He and no one else pretends that Germany is a perfect social organism without defects, such as the housing to which Dr. Porter refers; neither does any one pretend to state that the elements of national degeneracy are not present. But these defects and elements are kept in check by study, forethought, and organization, of which the State Insurance Act is one of the results. As for the effect of the Insurance Act on the medical profession, I have failed to find in the columns of our JOURNAL any evidence that the experience of Germany has shaken the *morale* of the profession there. If one were to judge by their original and effective contributions to the medical sciences, their *morale* must be put on a high plane; and if the civilized world in general were to judge, the prestige of the German medical profession would rank quite as high, if not higher, than that of their British colleagues.

The doleful predictions of Dr. Porter and Sir James Barr are not sustained by an appeal to the past, nor are they likely to be verified in the future.—I am, etc.,

Warrington, Feb. 3rd. J. S. MANSON.

SIR,—It is not my intention to take an active part in this controversy. The letter which appears in your issue of January 13th from Dr. J. S. Manson, however, appears at first sight so plausible and may appeal to many who are at pains to reconcile the crocodile-like sentimentalism which characterizes the present day with some semblance of sociological general principles, that I feel constrained to point out some of the fallacies it involves. And in doing so let me take certain of his statements seriatim.

"The interaction of nature and nurture, heredity and environment," he says, "is as yet practically unknown in human affairs." It is impossible that Dr. J. S. Manson can have overlooked the enormous amount of experimental facts accumulated and the pregnant conclusions which have resulted from them since the rediscovery of the work of Mendel in 1900. Before that date a statement so sweeping might have had some justification, though even then there was available the magnificent work of Archdall Reid and the results of the biometricians. To traverse it to-day would involve a discussion quite foreign to the nature of this communication and to the subject matter of this correspondence. Suffice it to say that each day the evidence grows stronger that the central facts of Mendelism—for example, the conception of unit-characters and the doctrine of gametic segregation—hold good for the mechanism of descent throughout the whole organic kingdom. To affirm *a priori* that mental characters form the supreme exception to this general rule is to support a theory which requires to be bolstered up by fresh hypotheses whenever fresh facts are discovered, and that, as Pasteur long ago pointed out, is the one great characteristic by which a bad theory may be recognized. It is, of course, assumed—and few will quarrel with such an assumption—that in man evolutionary progress is proceeding and will continue to proceed mainly along the lines of intellectual fitness, such as I showed in my last letter to be a possession of one only of the two natural divisions of which every race is composed.

Let us now deal with the assertion that the National Insurance Act, like so many of our recent legislative mistakes, is "the product of the social conscience and lies outside the will of any one man." I agree, and, further, I have no doubt that even the Conservative Party, false alike to its ideals and its traditions, would not hesitate to introduce a similar measure. But let us consider for a moment the genesis of this particnlar brand of social conscience. In my communication of January 6th I pointed out that of our two natural classes one was united, organized, and led; the other disunited, disorganized, and devoid of proper leadership. Only one result is possible—that the doctrines of the former should prevail, should, in time, voice the so-called social conscience. And so it has proved. But are we therefore to accept them as infallible or even inevitable? Is the class destined by Nature to continue and extend our racial evolution, for this reason to be content to fold its arms and accept with resignation, if not with acclamation, the lead of the other? It is becoming more and more difficult to do otherwise, to raise, as it were, the standard of morality of the social conscience; the birth-rate of the intelligent classes is steadily decreasing, while that of the lower classes is being equally steadily maintained. In other words, the race is becoming more and more composed of members of the lower and less intelligent classes. This fact is largely due to the legislative results of our new social conscience, and, like a vicious circle, it itself provides for the predominance of that variety of social conscience which has given rise to it.

In an elaborate investigation recently published, Drs. Davenport and Weeks have recorded their opinion that, "provided marriage matings continue as at present and

no additional restraint is imposed, the proportion of epileptics in New Jersey would double every thirty years." I think this brief quotation is sufficient answer to Dr. Manson's opinion "that most legislative enactments dealing with health and social reform are of the nature of experiments, whose ultimate outcome from the racial point of view cannot be predicted."

There is, in fact, only one reason why the legislative products of our social conscience at the present day are all in essence socialistic, and therefore in the highest degree detrimental to the race in that they foster the lower elements of the community at the expense of the better elements; and, similarly, there is only one reason—unless, indeed, one be found in the saying of George III, "We must call in bad men to govern bad men"—why the nation is represented to-day by men of the stamp of the author of the basest and most ignoble slur ever cast on an honourable profession, the statesman who stooped to the accusation of "wrangling over the sick-bed." That reason was also indicated in my former letter. We have come to such a pass that we have not got, and cannot recognize even if we had, true leadership.

Again I appeal—let us stand from under this Act, and let it and its author crash together. We shall then not only escape a degrading thraldom ourselves, but we shall also perchance, by offering some resistance to the torrent of over-legislation, obtain a little recognition of the wisdom contained in the words of an ancient Chinese philosopher, Lao-tzu (600 B.C.), who said: "Govern a great nation as you would cook small fish, that is, don't overdo it."—I am, etc.,

London, Jan. 14th. A. RUGG GUNN.

THE PROFESSION AND THE POLITICIANS.

SIR,—I have had sent me your article of January 27th, in which you represent me as having asserted that the violent and furious opposition of doctors to the Insurance Act is due to their being mostly Tariff Reformers. You modestly allege that medical training has taught you all not to make sweeping assertions without proof; but neither medical nor journalistic training seems to have put you on your guard against sweeping inferences from scrappy newspaper reports. I never made the assertion you impute to me. I did say that most doctors are Tories and Tariff Reformers, and you, without venturing to deny this, can only meet with epithets my statement that the majority of them would raise no protest against a tariff which raised the prices of food and manufactures for the masses. "Would not the doctors' own food and boots be dearer?" you ask. Yes, in my belief; but what thinks the tariffist doctor? Either he thinks prices would not rise, or he believes that he would be compensated by higher fees.

My references to the politics of doctors in my recent speeches were connected with two propositions: (1) That their alarm at legislation which affected them might well make them henceforth more scrupulous in their attitude to schemes of legislation affecting other people; (2) that their general Toryism *entered into* their attack on the Insurance Act. I know as well as you that a number of Liberal doctors oppose the Act. But it was not they, was it, who lately shouted down Sir Victor Horsley in a fashion rarely illustrated in that political life to which you feel yourself so virtuously superior?

With regard to the finance of the Act, I put three separate estimates—six millions, five millions, and four and a half millions. The first, I mentioned, was not my own calculation, but I thought it arguable. Your way of confuting it is astonishing. You deliberately exclude (1) the maternity benefit and (2) the sanatorium benefit, which are apart from the proposed capitation grant. And you lecture politicians about "ways that are dark and tricks that are vain"!

The general case put by me, of which you give no account whatever, was: (1) That, whereas the House was willing to give, if possible, a 6s. capitation grant apart from medicine, it was found impossible to satisfy the profession with any reasonable fixed grant, and the matter was accordingly left to the committees and the Insurance Commissioners; and (2) that the proper payment of the doctors being absolutely necessary to the proper working of the Act, either the Commissioners would secure it in virtue of their powers or any necessary amending legislation would be passed the moment it was seen to be required. All this you are careful not to quote—if you had it before you. You are so habitually anxious to be funny in your leading articles that you rarely contrive to give an outside reader like myself the slightest confidence in your political judgement.—I am, etc.,

Pembury, Kent, Feb. 4th. J. M. ROBERTSON.

P.S.—I never said that 10,000 doctors would be *got*. I said that number would probably *suffice* to work the Act. You should really try to understand what you are replying to.

⁂ Some comments on this letter will be found at page 325.

THE NEW CELL PROLIFERANT.

SIR,—It is a considerable number of years since Bernard Fischer's experiments on the chemiotactic and proliferative stimulation of the squamous epithelium of the rabbit's ear were made.

It appears that he used shellac resin dissolved in oil. His method of operating was as follows: The fluid, having been prepared, was injected by means of a hypodermic syringe from the inside of the pinna, through skin, subjacent tissue, and cartilage, into the cellular tissue lying between that and the external skin, but not piercing the latter. Fischer found that this procedure produced a formidable proliferation of the Malpighian layer of the outer skin of the opposite side of the pinna. This proceeding caused finger-like processes to be formed, which passed into the subcutaneous tissue down to the droplets of oil, and even in some cases into the track of the needle through the cartilage itself. With this the accumulation of the injected oil diminished, leaving the shellac resin in a solid form in the tissues. With the absorption of the oil the proliferation ceased, and the epithelial finger-like processes underwent atrophy.

Apart from the interest and ingenuity of the above experimental studies, and of much else that Bernard Fischer did, it is not very obvious to me what practical scientific gain is to be obtained from them. Nor, to all appearance may we predicate much more from the highly vaunted allantoin, which it is the passing fashion to obtrude upon our notice in spite of the abundance of cell proliferants which we already possess.—I am, etc.,

London, W.C., Jan. 23rd. FREDK. W. WRIGHT.

SIR,—My attention has been called by one of my colleagues to the article in your issue of January 6th on a new cell proliferant by Dr. Charles J. Macalister.

As stated by Dr. Macalister, comfrey has been known from very early times, and the common name of the plant in Lancashire, bone-set or knit-bone, may have been handed down from the time of the Saxons.

The leaves and root are sold by herbalists in this country, and abroad comfrey has an extensive use as a demulcent and mild astringent. During a sojourn of some years in the north of France I have known it to be sold frequently for making *tisane*, and understand that the thick mucilage obtained by boiling the root with water is used to make bandages for setting small fractures. This use is referred to by Martindale in the reference below, and is similar to that of thick mucilage of starch by veterinary surgeons.

Dr. Bramwell's Note on Comfrey (BRITISH MEDICAL JOURNAL, January 6th, 1912, p. 12), the plate illustrating which seems to have been taken from Woodville (below), and the letter of Dr. R. J. Isaac in the issue of January 13th give the general uses of the plant in medicine, and the quotation in the BRITISH MEDICAL JOURNAL of January 20th gives an older account. The quotation from a book in the previous century, written by a very notorious practitioner of medicine and astrology at the time of Charles II and Oliver Cromwell, may be of interest to your readers; particularly to the many who believe that there is some curative property in the old vegetable drugs which have been handed down for centuries, and who, like Dr. Macalister, can suggest that both the plant and its active principle are of value.

I should like, however, to correct a misapprehension on the part of the author of the article first mentioned as to his difficulty in finding anything about comfrey in books on materia medica and therapeutics. The references quoted below will show that a good deal has been written about

the drug, even recently, and it is to be regretted that Dr Macalister did not, before writing the very meagre historic note on comfrey, seek the help of one versed in pharmacognosy.—I am, etc.,

PROSPER H. MARSDEN,
Lecturer in Materia Medica and Pharmacy in the University of Liverpool.

Jan. 20th.

COMFRY.

Descript.) The common great Comfry hath divers large and hairy green Leavs lying on the ground, so hairy or prickly that if they touch any tender part of the Hands, Face, or Body, it will cause it to itch: the Stalk that ariseth up from among them being two or three foot high, hollow and cornered, is very hairy also, having many such like Leavs as grow below, but lesser and lesser up to the top. At the Joynts of the Stalks, it is divided into many branches with some Leavs thereon, and at the ends stand many Flowers in order one above another, which are somwhat long and hollow like the finger of a Glove, of a pale whitish color, after which come smal black Seed. The Roots are great and long, spreading great thick Branches under ground, black on the outside and whitish within, short or easie to break, and ful of a glutinus or clammy Juyce of little or no tast at all.

There is another sort in al things like this, save only it is somewhat less, and beareth Flowers of a pale purple color.

Place.) They grow by Diches and Water sides, and in divers Fields that are moist, for therin they chiefly delight to grow: The first generally through al the Land, and the other in some several places.

By the leave of my Authors, I know the first grow often in dry places.

Time.) They flower in *June* and *July*, and give their Seed in *August*.

Government and Vertues.) This is also an Herb of *Saturn*, and I suppose under the Sign *Capricorn*, cold, dry, and earthy in quality:

Spitting & pissing Blood, Inward wounds & bruises, Phtisick, Bloody flux, Terms, stops, Whites, Nervs cut Muscles cut, sharp Humors, Wounds, Ruptures, broken Bones, Knotted Breasts, Hemorrhoids, Inflammation, gout, Pained Joynts, Gangrens.—What was spoken of Clowns Woundwort, may be said of this. The great Comfry helpeth those that spit blood, or make a bloody Urin: The Root boyled in Water or Wine, and the Decoction drunk, helpeth all inward hurts, bruises, and wounds, and the Ulcers of the Lungs, causing the Flegm that opresseth them to be easily spit forth; It stayeth the defluxions of Rhewm from the Head upon the Lungs, the Fluxes of Blood or humors by the Belly, Womens immoderate Courses, as well the Reds as the Whites; and the running of the Reins hapning by what cause soever. A Syrup made therof is very effectual for al those inward Griefs and Hurts; and the distilled Water for the same purpose also, and for outward Wounds and Sores in the Fleshy or Sinewy part of the Body whersoever; as also to take away the fits of Agues, and to allay the sharpness of Humors. A Decoction of the Leaves hereof is available to all the purposes, though not so effectual as of the Roots. The Roots being outwardly applied, helpeth fresh wounds or cuts immediately, being bruised and laid thereto; and is especial good for Ruptures and broken bones: yea it is said to be so powerful to consolidate and knit together; that if they be boyled with dissevered pieces of flesh in a pot, it will joyn them together again. It is good to be applied to Womens Breasts that grow sore by the abundance of Milk coming into them; as also to repress the overmuch bleeding of the Hemorrhoids to cool the Inflammation of the parts thereabouts, and to give ease of pains. The Roots of Comfry taken fresh, beaten smal, and spread upon Leather, and laid upon any place troubled with the Gout, do presently give ease of the pains; and applied in the same manner giveth ease to pained Joynts, and profiteth very much for running and moist Ulcers, Gangreans, Mortifications, and the like, for which it hath by often experience been found helpful.—(Nich. Culpeper, Gent. Student in *Physick and Astrologie*; Living in Spittle Fields. London. 1653: *The English Physitian enlarged*, etc.)

REFERENCES TO THE PLANT SYMPHYTUM OFFICINALE, L., AND ITS USES.

1. *Chemist and Druggist*, January 20th, 1912, p. 47. Mention of Comfrey in the Middle Ages and in Elizabethan herbals.

2. *The British Pharmaceutical Codex*, 1911. (Pharm Soc., London, p. 368). As an adulteration of digitalis leaves.

3. Martindale and Westcott: *The Extra Pharmacopoeia* (14th edition, London, Lewis, 1910, p. 727) refers to the use of the plant and root boiled as a poultice for sarcomatous or cancerous tissues, L. I. 99.810. As decoction and syrup in kidney disease with blood in the urine, ibid., 939. General use, from an old herbal, ibid., 1068. Root pulped was used to stiffen bandages for fractures.

4 Henry Kraemer: *A Textbook of Botany and Pharmacognosy* (J. B. Lippincott Co., Philadelphia and London, 4th ed., 1910, p. 367) states that the root contains "a gluco-alkaloid consolidin and an alkaloid cynoglossine."

5. H. G. Greenish: *A Textbook of Materia Medica* (2nd ed., Churchill, London, 1907) refers to it as (2) above.

6. A. Tschirch: *Handbuch der Pharmacognosie* (1909, Tauchnitz, Leipzig, I, i, 95) refers to the collection of the root, which is there called *Radix Consolidae maj.*

7. Lyons: *Plant Names, Scientific and Popular* (Nelson, Baker, and Co., Detroit, 1907, p. 449). Nomenclature and uses.

8. John Humphrey: *Materia Medica of Vegetable Origin* (2nd ed., 1907, Kimpton, London). Ref. as (2) above.

9. Remington: *The Practice of Pharmacy* (4th ed., 1905, p. 750). As an unofficial mucilaginous substance used as an astringent and demulcent.

10. E. Merck: *Verzeichniss sämtlicher Präparate, Drogen und Mineralen* (1905, S 244). *Radix Consolidae*, nomenclature and states of division in which the root may be obtained from the firm of Merck.

11. F. Harwood Lescher: *Recent Materia Medica* (1897, p. 181). As (8) above, and gives dose of root as a quarter to half an ounce.

12. Planchon et Collin: *Les drogues simples d'origine végétale* (Paris, 1895, Octave Doin, Tome I, p. 641). Where it says "La racine de consoude renferme un principe mucilagineux et une petite quantité d'acide gallique."

13 Maisch: *A Manual of Organic Materia Medica* (Kimpton, 1895, p. 59). As (8) above.

14. E. Ferrand: *Aide-mémoire de pharmacie* (Baillière, Paris, 1891, p. 239) says: "On emploie la racine, qui est noire à l'extérieur, comprimée, blanche en dedans. Elle fournit avec l'eau des solutions mucilagineuses et très légèrement astrigentes," and gives its uses for haemorrhoids and diarrhoea, in the form of an infusion 2 per cent. and a syrup.

15. Wood and Bache: *Dispensatory of the United States of America* (1870, p. 1706) mentions decoctions of the fresh and dried root. "According to Lewis comfrey root yields to water a larger proportion of mucilage than that of Althaea."

16. P. L. N. Chernoviz: *Formulario ou Guia medica* (Pariz, 1868, pp. 277–8—a work of reference used in the countries of Central and South America, printed and published in Paris), states that the roots and leaves are used in the form of infusion and syrup for the treatment of haemorrhage of the lungs, and that the syrup is used to flavour diet drinks. The names Chernoviz gives to the plant are *Consolda major, Solda*, and *Symphito*.

17. Dorvault: *L'Officine* (Asselin, Paris, 1867, p. 392) gives an account similar to (16).

18. Merat and De Lens: *Dictionnaire universel de matière médicale et de thérapeutique générale* (Bailliere, Paris, 1834, Tome 6e, p. 618). This work gives a very full account of comfrey, with many references, and states that the root contains a crystalline substance.

19. William Woodville: *A Supplement to Medical Botany* (1794) gives a coloured plate, and an account of the drug, with the various names by which it is known.

20. Nich. Culpeper: *The English Physitian enlarged*, etc. (Peter Cole, London, 1653, pp. 73–4) which is quoted in full above.

21. Nich. Culpeper: *Pharmacopoeia Londinensis*, etc. (1653, p. 4) speaks of comfrey as *Radix Consolidae majoris*, and mentions a *Radix Consolidae minoris*, which he calls Self-Heal, and it is the plant *Prunella vulgaris*.

SIR,—There seems to be no new thing under the sun; as those who have read the accounts of Comfrey in 1727–1733 given in letters to the BRITISH MEDICAL JOURNAL will agree.

Will you allow me to give an account of the Medicinal Action of Comfrey written in 1640? In *Theatrum Botanicum, The Theater of Plantes or An Universall and Compleate Herball.* Composed by John Parkinson Apothecarye of London, and the Kings Herbarist. London, Printed by Tho: Cotes, 1640. On page 524 there may be found the following description of "The Vertues" of the Great Comfrey or *Symphitum Majus*:

THE VERTUES.

The great Comfrey is as some say, cold in a temperate degree, and others say hot, which is not held true, but drying and binding in a greater measure, for it helpeth those that spit blood, or that bleede at the mouth, or that make a bloody urine: as also for all inward hurts, bruises, and wounds, and helpeth the ulcers of the lungs, causing the fleagme that oppresseth them, to be easily spit forth, the roote being boyled in water or wine; the same also drunke, stayeth the defluxions of rheume from the head upon the Lungs, the fluxes of blood or humours, by the belly, womens immoderate courses, as well the reds as the whites, and the gonorrhoea or the running of the raines, happening by what cause soever: A syrupe made thereof is very effectuall for all those inward griefes and hurts; and the distilled water for the same purpose also, and for outward wounds or sores in the fleshy or sinewy parts of the body wheresoever, as also to take away the fits of agues, and to alay the sharpnesse of humours: a decoction of the leaves hereof is availeable to all the purposes, although not so effectual as of the rootes: Camerarius saith, that two ounces of the juice drunke, doth much good in the Lethargy and dead sleepe; the rootes being outwardly applyed, helpeth fresh wounds or cuts immediately; being bruised and laid thereto, by glueing together their lips, and is especiall good for ruptures and broken bones; yea it is said to be so powerfull to consolidate or knit together, whatsoever needeth knitting, that if they be boyled with dissevered peeces of flesh in a pot, it will joyne them together againe; it is good to be applyed to womens breasts, that grow sore by the aboundance of milke comming into them: as also to represse the overmuch bleeding of the hemorrhoids, to coole the inflammation of the parts thereabouts, and to give ease of paines: the rootes of Comfrey taken fresh, beaten small, spread upon leather, and laid upon any place troubled with the gout, doe presently give ease of the paines; and applyed in the same manner, giveth ease to pained joynts, and profiteth very much for running and moist ulcers, gangrenes, mortifications, and the like, often experimented and found helpefull.

Those members of the British Medical Association who are coming to Liverpool for the annual meeting in July next will, if they pay a visit to Sefton Park, Liverpool, see outside the palm house a very beautiful marble statue of "John Parkinson, Apothecary to King James I. Born 1567.

Died 1650," the author of the above-mentioned *Theatrum Botanicum*.—I am, etc.,

REGINALD THRELFALL BAILEY,
M.R.C.S.Eng., L.R.C.P.Lond.

Liverpool, Jan. 20th.

ARTIFICIAL RESPIRATION IN THE APPARENTLY DROWNED.

SIR,—Dr. J. F. Briscoe inadvertently ascribes to me a statement which I did not make. I wrote "in such *an animal* the right heart can be emptied by gravity," etc.

In regard to the apparently drowned I wrote, "I believe that this will relieve the over-distension of the right side of the heart." It is quite easy to empty the right heart in the animal by lifting up the head end and squeezing the thorax, and this must assuredly relieve the distension of the right heart in man. I quite agree with Dr. Briscoe that venesection is a sound method of treatment, but it is one which the layman cannot apply, while he can carry out the alternation of method which I propose.—I am, etc.,

LEONARD HILL.

Loughton, Essex, Feb. 5th.

THE AGE INCIDENCE OF CANCER.

SIR,—The chief difference between cancer and sarcoma, apart from the nature of the cells, lies in the age incidence of cancer, and the chief difference between parenchymatous and interstitial tissue, apart from the nature of the cells, lies in the parenchymatous faculty of desquamation.

This alone, I consider, strongly suggests that the varying liability to cancer as age advances is due to this varying parenchymatous faculty. Nor is this suggestion unsupported. As age advances, the flow of secretions, of bowel contents, of menstrual discharge, etc., becomes less, and cellular cohesion and impermeability become greater. Desquamation not only becomes sluggish, but less effective.

Furthermore, cancer is friable. The cells even in scirrhus float in juice. There is little cohesion. Such cells are conspicuously susceptible to the influences of this faculty. In cancer of the kidney the diffuse nature of the degeneration and the tortuosity of the tubules prevent even the young from escaping tumour formation.

I contend that youth is not inimical to cancer, but predisposes to successful elimination by desquamation.—I am, etc.,

P. HORNE MACDONALD.

Johnshaven, Jan. 29th.

THE NATURE AND ORIGIN OF CANCER.

SIR,—I am glad that Dr. Thomson Shirlaw has taken exception to certain of my remarks about cancer, as it gives me an opportunity of making my position a little clearer. He and I are agreed that the distinctive feature of cancer is that it results from the falling into abeyance of some agency which has hitherto controlled the organization of cells in the body. In health every cell is kept in its proper place; cancer is a local evidence of some relaxation of the grasp of this central "controller."

Now, Dr. Shirlaw says that this central controller "is of the nature of a secretion, and that it is a combination of the secretion of the thyroid, adrenals, and pituitary body." In this "material" explanation he has a competitor in Dr. H. T. Dufton, who maintains (BRITISH MEDICAL JOURNAL, December 23rd, 1911) that "the multinuclear giant cell is, as it were, the 'managing director' of cell activity."

In answer to Dr. Shirlaw, I would point out that the agency which regulates and controls the disposition of the cells in the body obviously exists in the developing embryo before the three glands which he names have appeared, and that it therefore cannot possibly be made up of their secretions.

I would suggest that Dr. Shirlaw cease his efforts to find a "scientific explanation" of this indubitable controlling force. He appears to agree with me that the break-up of personality observed in hysteria is due to a failure to use the will; now, the idea of a free "will" is most certainly anything but "scientific"; as far as the objective methods of science can tell us there is no such thing as free will; but nevertheless, for the practical purposes of psychotherapy, we have to accept as our fundamental postulate that it is very much in existence! (Cf. editorial in *Lancet*, November 13th, 1909.) Now, similarly, when we find the cells in part of a man's body beginning to break away, to proliferate, and generally to misbehave themselves at the expense of their host, we are, I submit, forced to suppose that there has been a partial failure of some controlling agency similar to the will, and which we would also, *a priori*, expect to be undetectable by the methods of science, though none the less "there." We might describe it as the "subconscious" part of the will—or else the will as the "conscious" part of it—whichever conception be preferred. I see Dr. Charles Walker (BRITISH MEDICAL JOURNAL, December 30th, 1911) refers to this "force" or "influence" as "cell autonomy" or "somatic co-ordination"; our fathers knew it as the *vis conservatrix et medicatrix Naturae*.

Dr. Shirlaw uses bold language when he says, "In cancer there is no psychic condition to be considered, but a material pathological state, which can only be explained in a material way." I should say that the material presentment of the cancerous process afforded us by science is more of a "description" than an "explanation"; the latter, which is so desirable for the practical ends of prevention and cure, is, I maintain, to be found rather in the conception of the regulating agency as being a "force" or "law" (metaphysical or abstract as that may sound) than as being a mere multinuclear giant cell or a blend of internal secretions.

In conclusion, I may say that I have dealt more fully with this subject in an article which is to appear in the February number of the *Practitioner*.—I am, etc.,

ARTHUR J. BROCK.

Edinburgh, Jan. 21st.

THE STUDY OF CONDUCT.

SIR,—Amazement and stupefaction are words very inadequate to express my feelings on reading Dr. Newington's letter.[1] When he appropriates to himself and his associates the opinion that I myself hold and have tried to express; and when he credits me with the opposite opinion, which he and they held and which I combated; I am completely matagrabolized, and, to use the current asylum slang, "disorientated." I am like a child in the presence of that complicated hypothesis—

> Supposing I were you,
> And supposing you were me,
> And supposing we both were somebody else,
> What a wonderful thing it would be!

It would indeed; but not more wonderful than the lapse of memory by which Dr. Newington attributes his own opinions to me, and appropriates mine to himself.

Fortunately for me, there is documentary evidence to which I am able to appeal. Dr. Newington now says that he, for one, by no means dissented from the study of conduct, but "we did not assent to conduct being classed with mental attributes—such as reason, will, etc.—in a formal syllabus of study then being drawn up." Well, Dr. Newington does not dispute that I was in a minority of one and that he and his associates had it all their own way, and reference to the syllabus in question will show that in the original draft, in the composition of which I had no hand, "Action, instinctive, volitional, and automatic," is No. 9 of a series of items under the heading of Psychology, other items of which are: No. 7, "Judgement and Reasoning"; No. 10, "Attention"; and in which will has no place. Reference to the syllabus, adopted after such modifications as I could induce the committee to accept, shows that "action, voluntary and involuntary," etc., is still included as a branch of psychology, and "defect and disorder of conduct" has been added, but added, not as an independent subject, but as a branch of morbid psychology. The utmost concession that I could obtain was that these were separated from the other branches of psychology by a space. Under Morbid Psychology, Item 5 is Delusion, Item 7 is Defect and Disorder of Will and Attention, and Item 8 is Defect and Disorder of Conduct. If, therefore, Dr. Newington and the other members of the committee "did not assent to conduct being classed with mental attributes," how came those items there? But this is far from being all the evidence in my favour. In the subsequent debate

[1] BRITISH MEDICAL JOURNAL, February 3rd, 1912.

before the whole association I am recorded in the official organ of the association as having said:

In the provisional syllabus that has been distributed you will find that some phases of conduct are included under psychology. It is difficult to treat this opinion with respect. . . . I will consent to regard conduct as a branch of psychology when you show me how to equate a smell of lavender with the Houses of Parliament, or when you can propel a battleship by a feeling of consternation. . . . Whether conduct is worth study or not is a question that I hope to hear debated this afternoon, but whether conduct can be included in psychology does not admit of debate. If you included the construction of the steam engine in a syllabus of counterpoint and harmony, or if you included the drafting of parliamentary bills as a branch of astronomy, you would not go further astray.

This was my attitude; what was the attitude of my opponents? Dr. Stoddart replied:

The point was that he (Dr. Stoddart) regarded conduct as a part of mind, and that was where they parted company, . . . the only point on which he differed from Dr. Mercier was that he (Dr. Stoddart) wished to include conduct in the study of psychology.

This is the opinion which, according to Dr. Newington, "is not held by any of us, as far as I know"; and his statement that "each day, each hour in our work, we have perforce to give study to conduct" is a paraphrase and *précis* of my contribution to the debate. Dr. Urquhart, in the same debate, held that "disorder of conduct was a late symptom, and one of secondary importance to the physician."

Whether psychiatric physicians, before my advocacy of the study of conduct, did or did not regard it as desirable or feasible, is of little importance; but it is a matter of considerable interest that in less than two short years men can forget that they held certain opinions, and honestly believe that they held the very opposite. The fun of the thing is that, as Dr. Urquhart admitted, I have been trying for five-and-twenty years to hammer into the heads of my colleagues an appreciation of the importance of studying conduct, and my efforts have always been received with an indulgent but contemptuous smile at "one of Mercier's fads." The same reception was for years accorded to my advocacy of the study of psychology by alienists, and I have little doubt that I shall be cited hereafter as a strenuous opponent of this innovation also.—I am, etc.,

London, W., Feb. 5th. CHAS. MERCIER.

COMBINATION OF M.O.H. AND OTHER APPOINTMENTS.

SIR,—Recently the *Western Daily Mercury* reported the proceedings of a joint meeting of the St. Austell Board of Guardians and the Rural District Council to consider the appointment of a medical gentleman to carry out the combined duties of medical officer of health, medical officer to the Union workhouse, and also No. 7 district.

A suggestion was also made that the office of public vaccinator should also be included. After a discussion the matter was adjourned for a month, a committee being appointed to discuss the various suggested schemes.

It is proposed to pay a salary of £400 per annum to a medical gentleman who presumably will have to devote the whole of his time to his "official duties." The combined appointments are as follows:

	£
Medical officer to the Union workhouse	35
Medical officer to the Union district No. 7 ...	30
Probable fees	10
Medical officer to the Union cottage homes ...	5
Medical officer to the rural district	270
Medical officer to the urban district	70

We hear on good authority that the expense of conveyance, drugs, etc., will fall on the holder of this appointment.

The local medical men have protested against the injustice of including in the office of medical officer of health the duties which are performed by other medical men resident in the district, and were supported by at least two of the members, who saw the danger of some of the work being neglected. Our main purpose, however, in writing this letter is to point out to the profession the grave danger they would be placed in by the creation of a medical bureaucracy, especially an inadequately paid one. These officials will be under the control, either directly or indirectly, of the Government. A sufficient number of them will in time become a sort of Government medical reserve, to be employed under the Insurance and other Acts on terms which the more independent practitioner would refuse—a position which we trust no medical man will accept.

The case illustrates the points which were urged by many speakers at the Joint Medical Officers' Associations' dinner, and shows the urgent necessity of all medical men who hold official appointments joining their respective associations, so that some joint action may be authoritatively taken, in view of the increasing number of local bodies who are seeking to make these ominous appointments on the spurious ground of so-called economy.—We are, etc.,

RASHELL DAVISON,
Chairman of Council;
D. A. BELILIOS,
Honorary Secretary,
Association of Medical Officers of Health.

New Malden, Feb. 6th.

EXTRACTION OF LENS IN THE CAPSULE.

SIR,—In an editorial published in the BRITISH MEDICAL JOURNAL of August 27th, 1910, on extraction of the lens in its capsule, you introduce details of the cases operated on by me in Major Kilkelly's in Bombay in February, 1909, of which he gave an account in an article in the *Indian Medical Gazette*, May, 1910.

These figures and this article has been quoted or referred to several times in the *Lancet* and BRITISH MEDICAL JOURNAL by various writers, and yet it has never been noted at any time that I subsequently proved these statistics to be quite untrustworthy, and consequently of no value to the ophthalmic world as far as intracapsular extraction goes. I will be much obliged therefore if you will publish the following summary of the whole case. (The whole controversy can be seen in detail by any one who consults the *Indian Medical Gazette* of 1910 and 1911, or the April number of the *Ophthalmic Record* of Chicago, 1911.)

While at the Bombay Medical Congress in February, 1909, at the urgent request of Major Kilkelly, I.M.S., I performed twenty-three intracapsular extractions in his hospital and left by the next train. At the time of operation I entered the details of the operation on the bed-head tickets of these patients. I heard no more of the cases until I saw them reported by Major Kilkelly in the May number of the *Indian Medical Gazette*, 1910. My permission to publish these cases was not asked, nor was any information given me concerning them before the publication of the results. I was not invited down to Bombay to see and report on them myself, along with Major Kilkelly and Dr. Porteus (who published notes of these cases in *North-West Medicine*, U.S.A., about the same time).

In a succeeding number of the *Indian Medical Gazette*, as a part of the controversy and as directly bearing on it, Major Kilkelly reported one side of a purely private case of mine—and reported it incorrectly—done at Amritsar, Punjab, without consulting me. The case was one that had gone wrong, but Major Kilkelly reported it because was of "general interest"—implying that it was in harmony with the Bombay cases, that such was the usual result of my cases, and that I knew nothing of the after-result of my cases. However, I was able to publish the whole of the case, putting a very different construction on the result.

Dr. Porteus, with Major Kilkelly's permission (not having asked mine), examined the Bombay cases said to be done by me, and reported details. When I put Dr. Porteus's facts as regards gross lesions along side of Major Kilkelly's facts as regards the same lesions they very much disagreed in every detail almost, even to the number of cases purporting to be mine. (Dr. Porteus reported on 24 cases—one too many). I also asked Major Kilkelly for the loan of the bedhead tickets to see my own entries thereon, as both these surgeons had recorded more capsules left behind than were entered on the bedhead tickets. He declined to let me see them, stating that he did not see what "useful purpose it would serve."

The results in themselves were utterly unintelligible to me, and when I put the facts of Dr. Porteus and Major Kilkelly alongside of each other, the only conclusion I could draw from the discrepancies was that these two

surgeons could not have examined the same cases, but that the failures of Major Kilkelly's hospital had been paraded for him and Dr. Porteus, and had been put to my charge. This charge I made in the controversy, and no attempt has been made to meet it, and no attempt can be made to meet it while Dr. Porteus's facts and Major Kilkelly's facts stand.

I consequently cannot understand how any fair-minded man can quote the results published by Major Kilkelly as having any bearing on intracapsular extraction.—I am, etc.,

HENRY SMITH, M.D., M.Ch.,
Lieutenant-Colonel, I.M.S.

Amritsar, Jan. 15th.

BLACKWATER FEVER.

SIR,—Among the many excellent features of your admirable publication, not the least enjoyable to me are the discussions in your "Correspondence" by your readers. Here one finds the physician saying what he thinks, unhampered by the limitations of a prepared paper, and from these discussions one cannot fail to obtain profit and pleasure.

It is because you are so liberal to those who have opinions to present, that I venture to ask you to allow me some of this space to reply to a recent communication that has interested me very much. I refer to the letter of Dr. C. Anthony in the JOURNAL of November 18th, 1911. Dr. Anthony claims to have demonstrated a specific organism in 187 cases of blackwater fever. This may not impress you as a discovery of any very great importance, as similar organisms are put forward every year as etiological factors in tropical diseases whose causation is obscure; and, moreover, this disease has but an academic interest to physicians outside of its endemic areas.

But to us who have to do daily with this malady, the question of its etiology is one of great importance, the more so since the relation of malaria to haemoglobinuric fever is a vexed problem, and has a vital bearing on the immediate and after treatment of the affection. If it is true, as many, including myself, believe, that blackwater fever is a manifestation of malarial infection, the after-treatment consists in removing the primary cause, and in preventing relapse or reinfection. If we are not correct in our hypothesis, there is no need to place the patient on a treatment that so often is not well borne. But in this disease, more so than in any other of tropical or subtropical origin, the solution of the problem of etiology is most urgently needed, for, if the malarial hypothesis be correct, the primary cause can, in most cases, be removed by proper treatment, so that the patient will not suffer the relapses which are so frequent and so many times fatal. I can say, without fear of contradiction, that only the physician who has, or has had, many cases of haemoglobinuric fever in his practice realizes the importance of determining its etiology. Dr. Anthony states, in part:

> Allow me to point out that blackwater fever is a disease *sui generis*, and stands by itself. Out of 187 cases I always found a special micro-organism in the blood, which I shall term for convenience sake *Treponema spirillum verticalis*, measuring 3 to 5μ, and not easily stained. The staining I use is carbol-fuchsine, and I have also been able, after injection of the culture, to produce haemoglobinuria in animals in from three to ten days. I am now in England, and at the disposal of the medical profession to prove my statement.

I have no desire in this letter to enter into a controversy as to the etiological factor in haemoglobinuric fever. There are many physicians who have carefully studied this disease, and the literature is already filled with conflicting hypotheses. But not until now has any specific proof of the etiology of the malady been advanced. Even the most ardent adherents of what is termed the malarial hypothesis admit that the exact mechanism of the production of haemoglobinuria is obscure. If Dr. Anthony can demonstrate, as he offers to do, to the medical profession in England that he has found a micro-organism other than the malarial parasite to be the cause of blackwater fever, he is entitled to the gratitude of all who are engaged in research into the etiology of the disease, for at present such research is a most difficult and very often a most unprofitable task. I, for one, shall be glad to rest from my labours, to wait for the antitoxin that will, no doubt, be forthcoming very shortly. I sincerely hope that either the Liverpool or the London School of Tropical Medicine will allow Dr. Anthony to exhibit to its faculty or students the *Treponema spirillum verticale* when the next case of blackwater fever appears in hospital. Or perhaps the Society of Tropical Medicine and Hygiene will avail itself, as certainly it should, of this opportunity for the edification and instruction of its fellows.

If Dr. Anthony can prove to the satisfaction of Sir Patrick Manson, Sir Ronald Ross, Dr. J. W. W. Stephens, or Dr. W. Carnegie Brown, as well as others familiar with the examination of the blood in this disease, that they have overlooked an organism which he has found in the blood of 187 cases, those of us in the canal zone who also have sought patiently and in vain in peripheral blood and in autopsy smears for this hitherto undiscovered marvel will be the first to acclaim the new parasite, although it will mean consultation with the oculist and a revision of our staining technique, to which latter much time and experimentation have been devoted. However, until Dr. Anthony makes this demonstration, there are some reasons why one should remain sceptical, and, with your permission, I shall briefly enumerate them.

I believe that, for its demonstration in the peripheral blood in each of 187 cases, this new micro-organism must, as a rule, exceed in number the parasites of malaria or of relapsing fever in the quantity in which these generally appear. Without the use of the Ross "thick film" method, I should feel that I had achieved something to be proud of could I demonstrate parasites in 187 consecutive admissions due to malaria into this hospital.

Dr. Anthony classifies his micro-organism as a *Treponema*. If there is any parasite of this genus or of the allied genera that will stain after carbol-fuchsine, and not after a good Wright's or Hastings's stain followed by a prolonged staining in Giemsa after the method introduced by Dr. S. T. Darling, Chief of Board of Health Laboratory on the Canal Zone, it is evident that such a parasite must possess a structure quite different from those of its own genus, or of the closely related genera, for *T. pallidum* and *T. pertenue* as well as all other pathogenic micro-organisms, as far as I am aware, will take such a stain, and are demonstrated without difficulty when present in any quantity.

For some years past, in Ancon and Colon Hospitals, a very careful search of the peripheral blood in blackwater fever, and of autopsy sections and smears, which are obtained in nearly all fatal cases, has failed to reveal any micro-organism other than the malarial parasite that could be accepted as an etiological factor in blackwater fever. Such preparations, when properly stained, give very beautiful pictures, and there have been demonstrated many micro-organisms, including spirilla-like forms, but none that answers Dr. Anthony's description.

Although I have stained the peripheral blood with carbol-fuchsine in several recent cases, I should not care to place myself on record as having seen the *Treponema spirillum verticale*, although not a few objects of peculiar form, not observed in control specimens stained by Hastings's, were found. From what I have seen in these few specimens, one of which contained many malarial parasites, I should not advise the use of carbol-fuchsine in blood staining. It is a very good culture medium for several species of moulds common in warm countries, and I have been informed that new micro-organisms have been discovered more than once when this reagent was used.

However, academic argument, although useful when no no other method is available, is not of value when actual proof can be had. And I must admit that no arguments of mine are likely to obtain against the evidence afforded by the positive findings in 187 cases. As I have stated, I trust that the medical profession of England will not delay in accepting Dr. Anthony's offer. In the meantime, permit me to suggest to Dr. Anthony that unless he revises the appellation of his micro-organism to accord with the accepted canons of biological nomenclature, some jealous co-worker in the same field will do it for him, and so deprive him of a part of the honour that will undoubtedly be his, when he is successful in convincing the gentlemen whom I have mentioned of the existence of the *Treponema spirillum verticale*.—I am, etc.,

W. M. JAMES, M.D.

Ancon Hospital, Ancon, Canal Zone, Dec. 29th, 1911.

THE MEDICAL FEDERATION (LTD.).

SIR,—Whatever opinions may be held as to the terms on which the profession should be willing to work under the Insurance Act; whatever opinions as to the wisdom displayed by the Council of the British Medical Association in their negotiations with the Chancellor; or as to the respective merits of a method of payment in detail for work as done or by capitation; or as to the chances of just treatment the profession would have under a Conservative instead of a Liberal Government—one firm conviction is now everywhere avowed, that a strong combination for purposes of mutual protection is essential for the maintenance of a profession to which the health of the nation can rightly—or indeed, safely—be entrusted.

During the last two years the British Medical Association has proved itself an organization sensitive to respond to the opinions, and register the needs of members of the profession scattered throughout the whole country; but it was not built for times like these; it is not equipped for voyages in such stormy seas. It can give us the organization for combination, but having perfected that, it must fail in its provisions for mutual protection; its constitution forbids it. Even if it collects a voluntary fund ostensibly for such protection, danger to its very existence threatens the moment these funds are disbursed for such a purpose.

And for some years past the Association, knowing this, has considered how best to obtain these protective powers—on what lines its articles of association should be altered or could be altered so that at the same time these needed powers could be obtained and the Board of Trade left satisfied.

And now, if the plan were ready, the machinery of its constitution is such that it must take two years and more before the new articles could be enforced; and that is useless to the profession in its present crisis.

Only one way out presents itself—namely, the formation of a new company, independent of the Association at first, possessing all its present powers and the additional powers so greatly needed; the support of the whole profession for the company, and ultimately the absorption of the Association by it.

In this way all the necessary protective and money-raising powers can be obtained within the present year.

The Medical Federation, Limited, has been formed and registered for this purpose; it has received the most careful consideration of eminent counsel, and combines powers of protection with complete democratic control by its members.—I am, etc.,

Westbury-on-Trym, Feb. 5th. THOS. M. CARTER.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

RELATIONS WITH UNQUALIFIED DENTISTS.

DE INQUIRENDO.—For a qualified dentist to have any professional relations with his father who is practising as an unqualified dentist would be unwise, and if any accusations should be made against him, the son would have to show his innocence. Thus, sharing a house or a waiting room or a lock-up surgery, or allowing his plate to appear upon his father's house, might be regarded as evidence of the existence of professional relations.

Medico-Legal.

FEES TO AGENTS.

T. A. G. writes that some time ago he engaged a locumtenent through a local agent by telephone at £5 a week, to include all charges. Some time later, meeting the same locumtenent in charge of a neighbouring practice, he engaged him again to take charge for him for another week. He has now received an account of one guinea from the agent, being 10s. 6d. for each occasion. He wishes to know whether he is compelled to pay on either, or both, occasions, as during the twenty years he has been in practice he has never yet had such a claim made, although he has repeatedly employed the services of a locumtenent.

*** Legally, an agent can only claim commission from one of the parties—either the principal or the locumtenent; but a custom has grown up of late years to make a charge to the principal of a certain amount, as a "booking fee" or "office expenses," and if the principal has been informed of this, the agent would be entitled to recover it. Our correspondent would probably have to pay half a guinea for the first occasion, but we doubt whether the agent is entitled to claim the second half guinea.

The Services.

INDIAN MEDICAL SERVICE.

THE result of the January examination was announced on January 27th, 1912. There were 38 candidates, the first 12 being admitted as lieutenants on probation with effect from January 27th, 1912.

The names of the successful candidates with the marks obtained by each out of a possible total of 5,100 are given below, together with their degrees and medical schools:

Name.	Degrees, etc.	Medical School.	Marks.
R. H. Candy ...	M.B., B.S.Lond., M.R.C.S., L.R.C.P.	London Hospital	3,447
P. J. Veale... ...	M.B., B.S.Lond.	Bristol University and University College Hospital	3,376
H. Hingston ...	M,B., B.S.Lond.	Westminster Hospital	3,358
J. C. Bharucha ...	L.M. and S.Bombay, M.R.C.S., L.R.C.P.	Grant Medical College, Bombay, and London Hospital	3,338
F. J. Anderson ...	M.R.C.S., L.R.C.P.	St. Bartholomew's Hospital	3,254
H. J. M. Cursetjee	L.M. and S Bombay, M.B., B.S.Cantab., M.R.C.S., L.R.C.P.	Grant Medical College, Bombay, Cambridge University, and London Hospital	3,191
J. S. S. Martin ...	M.B., Ch.B.Edin.	Edinburgh University	3,094
P. F. Gow	M.B., Ch.B., D.P.H.St. Andrews	University College Medical School, Dundee and St. Andrews University	3,093
R. V. Morrison ...	M.B., Ch.B.Edin.	Edinburgh University and Royal College of Surgeons, Edinburgh	3,019
J. C. Dey	M.B.Calcutta	Calcutta Medical College and Westminster Hospital	3,006
J. W. Jones ...	M.B., Ch.B.Glasg.	Glasgow University	2,992
J. H. Hislop ...	M.B., Ch.B.Glasg.	Glasgow University	2,958

GLASGOW MEDICAL UNITS (TERRITORIAL FORCE).

THE annual gathering and presentation of prizes in connexion with the Glasgow Units of the Royal Army Medical Corps (Territorial Force) was held in the Repertory Theatre on the evening of January 31st. The play was *Wee Macgregor*, and the whole theatre was reserved for members of the units and their friends. After the close of the second act the prizes gained during the past year were distributed on the stage. Sir George T. Beatson, M.D., K.C.B., the Administrative Medical Officer for the Lowland Divisional Area, presided, and was accompanied by Major-General Spens, C.B., commanding the Lowland Division, who presented the prizes, and by Lieutenant-Colonel W. F. Somerville, Lieutenant-Colonel A. D. Moffat, Lieutenant-Colonel R. T. Halliday, Lieutenant-Colonel Alex. Napier, and Lieutenant-Colonel Morgan, R.A.M.C., Maryhill. Sir George Beatson, in reviewing the work of the year, said that in the divisional area they were only short in numbers to the extent of 2 officers and 17 men, having on the roll 198 officers and 1,035 men, while they had the full complement of 360 nurses enrolled. He thought these figures spoke well for their patriotism. Then they had in the division 22 men and 66 women's voluntary aid detachments, numbering in all 2,711 persons enrolled during the past twelve months. Altogether in training and other respects they had had a very satisfactory year's work. They had now received good equipment of a technical kind, and the prospects for the coming season were good. They hoped to be in occupation of their new drill hall by the end of May, and they were much indebted to General Spens and to the County Association for the firm stand they had made to secure the suitable housing of the corps.

DR. J. J. GRAHAM BROWN will deliver the Morison Lectures before the Royal College of Physicians, Edinburgh, on March 4th, 6th, and 8th, at 5 p.m. on each day. The subject of the lectures is Certain Aspects of Ataxia.

Obituary.

SIR HENRY BUTLIN.

DR. HENRY BARNES (Carlisle) writes: What a loss Butlin will be, and what splendid service he rendered to the Association! If any effort is being made to perpetuate his memory I should be glad to help. By the way, there is a trifling error in date in your very excellent obituary notice. It is there stated that he was Treasurer from 1890 to 1895. His second term of office expired at the Carlisle meeting in 1896. He was re-elected for a second term at the Newcastle meeting in 1893. Up to that time no one, I believe, had ever been elected for a second term as Treasurer, and he was much gratified by the confidence thus shown in his re-election, which was quite unexpected. He had the happy faculty of making figures interesting, and the admirable quarterly statements made to the Council, and the lucid statements at the annual meetings were really models of their kind, and must be fresh in the minds of many of the members.

THE LATE DR. BISS.

DR. W. ESSEX WYNTER (London) writes: The very brief notes which conclude the obituary notice of Cecil Yates Biss in your last issue convey an imperfect impression of his character, and it is only fair to his memory and in accord with his own strict regard for truth in the minutest detail to put this in its proper light. Dr. Biss was above all things unsectarian. His views were individual and unaffected by considerations of agreement or opposition to those of others. Though not a smoker from choice, he employed tobacco, on the advice of a friend, during his illness, till satisfied that he derived no benefit from it. In the use of alcohol also he was no prohibitionist, using it in strict moderation himself and employing it without hesitation in the treatment of patients, though he inveighed against the unnecessary and excessive use of stimulants, whether in health or disease. As in these matters, so in religion, he held his own views, and as a matter of conscience expounded them, but not in conscious agreement or opposition to any denomination. Nothing, however, could indicate the fortitude or serenity of his disposition better than the long unrepining vigil of his protracted illness, in the course of which he experienced the loss of his wife and the son who had adopted his own profession, in addition to his own compulsory retirement from the main pursuits of life just as success seemed to crown his efforts.

WE regret to announce the death, after a long illness, of DR. AROON CHUNDER DUTT, of Everest Lodge, Newington, Hull, which took place on January 29th. Dr. Dutt belonged to a Calcutta family, well known for its legal and literary abilities, being himself the grandson of Sir Rajah R. Deb, K.C.S.I., first county court judge of Calcutta, and cousin of the late Romesh Dutt, C.I.E., Prime Minister of Baroda. Dr. Dutt graduated at Cambridge, taking the degree of B.A. in the Natural Science Tripos with honours, proceeding to the M.B., and later to the M.D. degree. He was also Associate of King's College, London, and was a member of the East Yorkshire Division of the British Medical Association. After holding various hospital appointments at Morpeth, Salford, and Scarborough hospitals, Dr. Dutt practised in Whitby, Yorks, for a few years, and then in Hull for fifteen years up to the time of his death. He was the author of "Health Notes for the Seaside," and "The Causes and Treatment of Some Forms of Vertigo," also "Case of Brain Tumour" (BRITISH MEDICAL JOURNAL). He married the only daughter of Mr. F. W. Booty, of Scarborough, and his widow and only daughter survive him.

WE regret to have to announce the death of Mr. J. M. COMLEY, M.R.C.S.Eng., Calcutta, on December 30th. He was one of the oldest residents of Calcutta, and probably the oldest medical practitioner in the city. Educated at Guy's Hospital Dr. Comley became M.R.C.S. in 1859. He went to Calcutta about fifty years ago, and, except for a short period he spent at Kursong practising amongst the planters in the district, he had practised in Calcutta ever since. When he first went there it was a very different place to the Calcutta of to-day, and in the intervening years he had in a quiet and unobtrusive way done a good deal to improve sanitary conditions and make it a healthier city. During this time he built up a large practice amongst all classes of people. He was of a charitable disposition, and many poor people of Calcutta have reason to remember him for many good deeds done unostentatiously. Mrs. Comley has been well known in Calcutta for many years for her extensive charities among the poorer classes of the domiciled community. She was the foundress of St. Mary's Home for the Poor, which is one of the best known institutions of its kind, and provides a home for many poor persons, both European and Eurasian. Dr. Comley was for many years medical adviser to the home. He had been ill for two and a-half months when he died at the advanced age of 74.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession who have recently died are: Dr. José Ribera y Sans, Professor in the Medical Faculty of Madrid and a member of the Spanish Royal Academy of Medicine; Dr. J. Albarrán, Clinical Professor of Diseases of the Urinary Passages in the University of Paris, aged 50; Dr. Karl Horstmann, Extraordinary Professor of Ophthalmology in the University of Berlin, aged 65; Dr. Herman Versluysen of Antwerp, Vice-President of the Belgian Stomatological Society, aged 48; and Dr. Max Salomon, a prominent physician of Berlin, one of the founders of the establishments for children on the German seacoast, and author of numerous writings on the history of medicine.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Degrees.

THE following degrees have been conferred:

M.D.—Francis P. Young.
B.C.—Bernard Haigh, W. D. Coplestone.

Graphic Records of Heart's Action.

Dr. James Mackenzie will give a demonstration on graphic methods of recording and interpreting the functions of the heart on Monday, February 19th, at 5 p.m., at the Medical Schools.

John Lucas Walker Studentship.

Applications for this studentship, the holder of which shall devote himself to original research in pathology, are invited, and should be sent, accompanied by copies of papers containing published work and references, before February 19th, 1912, to Professor Sims Woodhead, Medical Schools, Cambridge, who will also give further particulars. The studentship is of the annual value of £200, and tenable under certain conditions for three years.

Research Studentship in Physiology.

Dr. Jamison B. Hurry, of St. John's College and Reading, has offered to endow a research studentship in physiology to be called the Michael Foster Research Studentship.

A CORRECTION.

We regret that, in giving the list of candidates upon whom degrees had been conferred in the University of Cambridge (BRITISH MEDICAL JOURNAL, January 27th, p. 222), Mr. G. V. Fiddian's name was printed "G. V. Fiddison." The line should read as follows: "M.B., B.C.—G. V. Fiddian."

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on February 1st, Mr. Rickman J. Godlee, President, in the chair.

The late Sir Henry Trentham Butlin, Bart.

The following resolution was passed by the Council:

That the Council hereby record their deep regret at the death of their colleague Sir Henry Trentham Butlin, Bart., for whom they entertained the warmest feelings of personal friendship, and they desire to express their very sincere sympathy with Lady Butlin and the other members of the family in their bereavement.

That the Council do also record their appreciation of the distinction and ability with which Sir Henry Butlin fulfilled the duties of President of the College and Member of the Council, and their grateful sense of the many services rendered by him to the College and the medical profession. The Council believe that no member of the profession more fully enjoyed the confidence and esteem of his colleagues, and his devotion to duty in failing health and increasing infirmity will be treasured by them as a priceless example of courage and unselfishness. For these reasons, as well as for his admirable skill in practice, they are assured that his name will always be held in honour and kindly remembrance.

The President reported that the vacancy in the Council occasioned by the death of Sir Henry Butlin would be filled up at the annual meeting of Fellows in July.

Issue of Diplomas.

Diplomas were granted to ninety-one candidates found qualified for the Membership of the College.

Diplomas in Public Health were granted jointly with the Royal College of Physicians to eighteen candidates found qualified.

Court of Examiners.

Mr. James Ernest Lane was re-elected a member of the Court.

National Insurance Act.

A letter of January 24th was read from the Assistant Secretary of the Joint Committee for National Health Insurance, stating that the National Health Insurance Joint Committee and the Insurance Commissions for England, Scotland, and Wales respectively propose to hold a conference on Friday, February 2nd, with representatives of the medical profession, and inviting the College to appoint two members to attend the conference.

The following reply was sent to the National Health Insurance Commissioners:

"The Council regret they are not prepared to send representatives to the meeting suggested by the National Health Insurance Commissioners."

It was further decided to inform the Commissioners that the Council are of opinion that the administration of the medical benefits cannot be carried out under the Act with due regard to the interests of the public and the welfare of the medical profession, and that no satisfactory arrangement can be arrived at without an Amending Act; and that the Council would, however, be prepared to render any assistance in their power in the drafting of an Amending Act for the provision of such amendments as are necessary to secure the co-operation of the medical profession.

The Standing Committee of the College was instructed to take steps to communicate with the Medical Corporations, with the view of united action with regard to the Insurance Act.

Royal Commission on University Education in London.

Mr. R. J. Godlee, President, and Sir Alfred Pearce Gould were nominated as witnesses to represent the College before the Royal Commission in regard to dental education.

Central Midwives Board.

Mr. Golding-Bird was reappointed representative on the above board.

Bradshaw Lecturer.

The President reported that he had chosen Mr. C. Mansell Moullin as Bradshaw Lecturer for the ensuing collegiate year.

Report by the General Medical Council on Dental Education.

A letter was read of December 22nd, 1911, from the Registrar of the General Medical Council, enclosing a copy of the report of the Dental Education and Examination Committee of that Council on the inspector's reports on the final examinations of the Dental Licensing Bodies, in which all these examinations are reported as "sufficient."

The Secretary stated that in the report of the Dental Education and Examination Committee the proportion of marks which candidates at the examinations for the licence of this college must obtain in order to pass is given as two-fifths, whereas three-fifths is the proportion required, and reported the steps which had been taken to correct this error.

Primary Fellowship Examiners.

Attention was called to the large percentage of rejections in the primary examination for the Fellowship, and in accordance with Section xiv, paragraph *b*, of the standing rules, the Nomination Committee was requested to arrange to visit the primary examination for the Fellowship in May next, and to report to the Council.

CONJOINT BOARD IN ENGLAND.

Diplomas of L.R.C.P. and M.R.C.S.

AT a meeting of Comitia of the Royal College of Physicians on January 25th, and of the Council of the Royal College of Surgeons on February 1st, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the undermentioned candidates who have passed the Final Examination of the Conjoint Examining Board and have complied with the necessary by-laws:

T. S. Allen, S. Azmy, G. V. Bakewell, *G. Barratt, D. Bird, C. H. B. Booth, A. V. Boyall, T. C. Butler, C. G. H. Campbell, A. B. Cardew, E. E. Chipp, T. Clarke, H. G. Crawford, C. W. De Morgan, G. de Swietochowski, E. P. Drabble, C. R. Dudgeon, N. Duggan, P. V. Early, M. C. F. Easmon, W. M. Ecclestone, O. E. D. Ellis, A. Evans, A. G. Evans, D. B. Evans, G. A. Ewart, I. Fahmy-Elminyawi, M. A. Farr, A. Ferguson, C. M. Forster, A. A. Fyffe, A. L. Gardner, G. H. Garlick, J. T. S. Gibson, C. E. A. Goddard, T. C. Graves, J. C. Hallinan, E. R. Hart, S. M. Hattersley, G. V. Hobbs, R. H. Hodges, B. W. Howell, F. J. Humphrey, R. L. Hurst, C. M. Ingoldby, H. G. G. Jeffreys, *Nagubai Moreshwar Joshi, Bhagat Ram Khanna, L. Levene, R. H. Liscombe, *E. M. Livesey, A. C. McAlister, M. Mackenzie, A. F. C. Martyn, P. H. Mitchiner, Kavasji Cursetji Mulla-Feroze, F. L. Nash-Wortham, P. A. Newton, B. N. Norman, W. D. Owen, D. B. Pascall, W. B. Peacock, G. H. Pearson, J. H. Pendered, W. S. Perrin, R. A. Pittard, J. McF. W. Pollard, H. B. Pope, G. L. Preston, A. J. Rae, P. W. Ransom, R. B. N. Reade, E. D. Richards, E. U. Russell, R. Sherman, F. B. Smith, P. Smith, H. K. V. Soltau, G. Sparrow, J. L. Stewart, C. W. H. R. G. Van der Beken, V. Vesselovsky, R. H. Vicary, V. D. C. Wakeford, L. C. Watkins-Baker, A. J. Waugh, E. White, C. G. Worlow, J. B. A. Wigmore, R. W. Willcock, J. Winterbotham, P. A. With.

*M.R.C.S. Diploma previously granted.

Public Health

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Inverness.—The annual report of the Medical Officer of Health for Inverness (Dr. John Macdonald) has just been issued. Based on an estimated population of 24,000, the birth-rate works out at 20.875 per 1,000 persons, and the death-rate at 16.958. The water supply of the burgh has been engaging the attention of the local authority for the last ten years, and steps are now being taken to improve it. The annual return of the registrar shows that the number of statutory declarations of conscientious objection under the Vaccination Act (Scotland), 1907, are increasing; 137 declarations were lodged during the year, as compared with 96 in the previous year. This represents more than a quarter of the total births registered—infectious diseases for the most part are treated in the isolation wards of the Northern Infirmary, but there are also small-pox and cholera hospitals. The number of cases of infectious disease notified during the year was 127, of these over 67 per cent. were removed to the hospital. The number of cases of diphtheria, 57, was unusually severe. The medical officer of health is satisfied that this disease did not spread by means of school attendance, nor is he convinced that bad drainage plays such a great part in the causation of diphtheria as has been assigned to it in the past. Possibly "carriers" were of more importance. During the year 24 cases of phthisis were voluntarily notified; since the beginning of this year compulsory notification of this disease has been adopted.

County Borough of Blackpool.—The population of Blackpool at the last census was 58,376, but the statistics in the annual report of the medical officer of health, Dr. E. W. Rees-Jones, are based upon an estimated population at the middle of 1910 of 60,113, a number which has been arrived at by multiplying the known number of inhabited houses by 4.5, the estimated average number of persons per house. The very low birth-rate of 16.7 per 1,000 was recorded. An instructive table in the report shows that since 1878 the Blackpool birth-rate has decreased by 57 per cent., though in England and Wales during the same period the birth-rate has fallen only 30 per cent. The illegitimate birth-rate is given as 4.61 per 1,000 females at conceptive ages, those ages being stated as from 20 to 45 years. This is not a usual or very satisfactory method of indicating the amount of illegitimacy. It is better to state the number of illegitimate children as a proportion of the number of unmarried and widowed women at conceptive ages, which are generally considered to be from 15 to 45 years. The corrected death-rate from all causes was 12.5 per 1,000, and varied from 9.6 per 1,000 in one part of the town to 14.6 in another. The infantile mortality-rate was 106 per 1,000 births, a very distinct improvement on that of former years, for in the ten-year period 1900–1909 it was 132 per 1,000. The phthisis death-rate was 0.72 per 1,000. A scheme of voluntary notification of this disease is in force in the borough, but during 1910 there were notified only 37 cases, although the deaths numbered 43. Dr. Rees-Jones considers that the sanitary authority should have compulsory power to disinfect thoroughly all premises which have been occupied by consumptive persons, and that it should be a penal offence to allow such premises to be occupied by others without previous disinfection.

SEWERING OF NON-ADOPTED STREETS.

W. R. S.—Section 152 of the Public Health Act, 1875, appears to throw the responsibility for sewering streets which have not been "adopted" upon the owners of the property abutting on such streets. The owners would be the actual owners for the time being of the buildings, and not the persons from whom the land on which the buildings are erected had been leased.

YARDS AND CISTERNS.

A. W. B.—Section 25 of the Public Health Acts Amendment Act, 1907, which is an adoptive Act, empowers a sanitary authority to require a yard in connexion with and exclusively belonging to a dwelling-house to be paved. Section 35 of the same Act enacts that a nuisance which may be dealt with under the Public Health Act, 1875, includes "any cistern used for the supply of water for domestic purposes so placed, constructed, or kept as to render the water therein liable to contamination, causing or likely to cause risk to health."

THE German Society of Experimental Physiology will hold its next meeting in April (16th to 19th).

THE Selborne Society, which is arranging a Gilbert White exhibition at the offices of the Civil Service Commission, Burlington Gardens, on Friday and Saturday next, February 16th and 17th, are anxious to obtain the loan of copies of the *Naturalist's Journal*, a skeleton diary devised by Daines Barrington first published in 1767, and the first edition of Aikin's *Calendar of Nature*, and a copy of Stillingfleet's *Calendar of Flora*. They also wish to know the origin of the foresters' custom of making arbours on St. Barnabas's Day, and as to the nature of the genteel corded stuff called barragons made by Quakers at Alton.

Medical News.

ON the occasion of his recent visit to Gibraltar the King conferred the honour of Membership of the Victorian Order upon Dr. William Turner, Surgeon to the Colonial Hospital, Gibraltar.

THE annual oration of the Hunterian Society will be given at the London Institution, E.C., by Dr. Glover Lyon on Wednesday evening, February 14th, at 9 p.m. The subject of the address is the cure of consumptives: a review and a forecast.

THE Oxford Ophthalmological Congress will assemble at Keble College, Oxford, on Wednesday, July 17th next, and the meeting will be held on Thursday, the 18th, and Friday, July 19th. Any member who has cases or specimens to show or would be willing to give a demonstration or exhibition is asked to communicate with Mr. Sydney Stephenson, Honorary Secretary, 33, Welbeck Street, London, W.

IT is announced that a committee has been formed at Dôle, Louis Pasteur's town on the slopes of the Jura, for the purchase of the house in which he was born. The French Minister for Foreign Affairs, M. Poincaré, has now received, through the French Ambassador in Washington, an offer from Mr. Rockefeller to subscribe the remaining £2,200 required for the purchase of the house. M. Poincaré transmitted to the committee at Dôle Mr. Rockefeller's generous offer, which was gratefully accepted.

DR. F. C. DAVIES, Medical Officer of the Battersea Tuberculosis Dispensary, will open a discussion before the Institute of Civil Engineers on February 12th by reading a paper on the history of the infectivity idea in relation to tuberculosis and its influence on public health authorities, and Mr. A. Alban H. Scott will discuss the question of the planning and designing of private and national sanatoriums at a suitable cost. The meeting will be held at the Royal United Service Institution, and the chair will be taken at 8 p.m. by Mr. Edward White, chairman of the London County Council.

WE have had occasion previously to refer to the Holophane "Lumeter," which is a small photometric instrument intended for the measurement of the brightness of a surface as distinct from that of a source of illumination; Messrs. R. and J. Beck, Ltd. (68, Cornhill, E.C.), now send particulars of an improved model having an increased range of adaptability. With the new instrument the brightness of any surface from one-hundredth of a candle-foot to two thousand candle-feet can be measured. The procedure consists in graduating an illuminated disc until it corresponds in intensity with the portion of the surface under examination, which is visible through an aperture in the centre of the disc itself. The matching having been obtained, the degree of brightness is read off on a scale. A new and useful accessory is a polar curve apparatus, enabling the intensity of light from a given source to be rapidly determined in every direction and at all angles. It seems to have a special application to the lighting of school rooms.

THE usual monthly meeting of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Friday, January 19th, Dr. de Havilland Hall in the chair. The accounts presented showed that the business of the society during the last month of 1911 continued to be good. As the winter advances the claim list grows, but the amount of the sick claims paid away in December compared favourably with the amount usually paid in this month, and did not exceed the net monthly expectation provided for in the table of rates of contribution. Every year since the society started in 1884 the number of members has grown, and the amount paid away in sickness benefit has also increased. But the amount of sickness provided for when the business was founded has not been exceeded, and every year the sickness business shows a margin in favour of the society. The funds, which now amount to over a quarter of a million sterling, have always earned a much higher rate of interest than that assumed when the business of the society is valued, and as in addition (through the economy with which the business is worked) the management expenses amount to much less than the 10 per cent. allowed in the rules, the whole operation of the society produces a substantial surplus. The time of the committee was mainly occupied in examining special reports on the condition of chronic cases. A large portion of the surplus made by the society is earmarked on behalf of these cases. Prospectuses and all further particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

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CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Office, 429, Strand, London, W.C.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London*. The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, London*.

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

M.D. asks as to the maker and cost of a hot air cabinet heated by electricity.

R. S. M. asks for advice in the treatment of a man troubled with redness of the nose, especially in cold weather, but otherwise healthy.

BRITISH asks for advice in the selection of a locality in England for a permanent residence for a patient who had an attack of tubercle, but has apparently made a complete recovery.

ANSWERS.

DR. ANDREW S. MCNEIL (Liverpool) writes: In reply to "Quaestor," I think it is quite likely that if he examine the left inferior turbinate bone of his patient he may find it enlarged and projecting into the naso-pharynx. Where such is the case, the pressure exercised through the soft palate upon the inflamed and hypertrophied mucous membrane of the turbinate bone in the act of swallowing food is capable in some cases of producing hypersecretion, and in others—perhaps later stages—of primary crusts on the turbinate bone affected. If the condition is present, nasal douching with glycothymoline, 1 to 2 of warm water, might be tried; and later, if necessary, partial turbinectomy. If this is not successful, resection of the nasal nerve might be undertaken.

LETTERS, NOTES, ETC.

SYMPHYTUM AND BORAGO.

DR. WM. HARDMAN (Blackpool) writes: I have been much interested in the observations recently published on *Symphytum officinale*, or the common comfrey. There are two varieties of this, *S. officinale* and *S. tuberosum*. There is a considerable difference in the appearance of these two plants, though also a strong family likeness. Probably both would have the same properties. I should like to know if this is so. A very nearly allied plant is the common borage, *Borago officinalis*. The common comfrey, according to my experience, is decidedly not common in the fylde, though occasional specimens are met with; but borage, where once it becomes established, is a very persistent and prolific weed. It has a much handsomer flower than either of the others: it is, in fact, a beautiful plant. The properties of borage seem almost identical with those of comfrey, and I should be surprised if it did not turn out to be utilizable as a source of an allantoin-containing infusion equally with the two comfreys.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restante* letters addressed either in initials or numbers.